

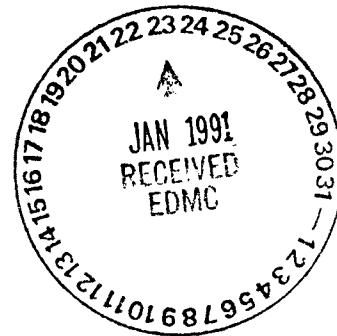
0012368

SINGLE-SHELL TANK WASTE CHARACTERIZATION FOR TANK 241-U-110 CORE 12
SEGMENT 2 3 4
DATA PACKAGE

SECTION

1 OF 10

P.O. Box 1970 Richland, WA 99352



222-S/RCRA Analytical Laboratories

Project: Single-Shell Tank Waste Characterization

Tank: 241-U-110

Core: 12

Customer Id. Number: Core 12 Composite

Report Revision: 1

Date Printed: October 19, 1990

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This report consists of pages 1 through 476.

Appendix A consists of pages A-1 through A-115.

Appendix B consists of pages B-1 through B-3.

I have reviewed this report and certify that the package is in compliance with "Quality Assurance Project Plan for the Chemical Analysis of Highly Radioactive Samples in Support of Environmental Activities on the Hanford Site" - WHC-SD-CP-QAPP-002. I found it to be a true and accurate accounting both technically and for completeness of the laboratory analyses performed on this sample.

Shirley A. Cervantes
Shirley A. Cervantes
Data Coordinator

Date November 6, 1990

Cary M. Seidel
Cary M. Seidel
Unit Manager

Date November 7, 1990

Larry H. Taylor
Larry H. Taylor
Laboratory Q.A. Officer

Date November 20, 1990

INTRODUCTION

INTRODUCTION

Westinghouse Hanford Company Analytical Laboratories are supporting the characterization efforts of the single shell tanks. The characterization of tank 241-U-110 was performed under Phase 1A and 1B of the "Waste Characterization Plan for the Hanford Site Single-Shelled Tanks" (WHC-EP-0210).

Tank 241-U-110 has a 500,000 gallon capacity. Construction was completed in 1944. The tank received first cycle waste, REDOX (Reduction-Oxidation) high-level waste, coating waste, and laboratory waste until 1975. Between July 7, 1975 and February 2, 1976, P-10 pumps were installed and 41,700 gallons of liquid waste was pumped from the tank. Tank 241-U-110 still contains an estimated 195,000 gallons of waste.

Analytical Laboratories performs all analytical analysis to the specifications of the "Quality Assurance Project Plan for the Chemical Analysis of Highly Radioactive Samples in Support of Environmental Activities on the Hanford Site," WHC-SD-CP-QAPP-002. In accordance with WHC-SD-CP-QAPP-002, the following laboratory policies are being followed. Spikes are performed on either the undissolved sample, or the sample after dissolution, as directed by the scientist. If the spike addition is found to be less than 20% of an analyte concentration, the spike recovery is not reported due to errors introduced by the precision of the sample analysis. The concentration of spike additions will be re-evaluated before the start of Phase 1C. Two spiking routines are being used during Phase 1A and 1B. For the following analyses, Ion Chromatography (IC), Inductively Coupled Plasma (ICP), Mercury Hydride, Total Organic Carbon (TOC), and Carbonate analyses, the solid sample is spiked independently from the sample digestion. Any non-homogeneity of the sample could adversely affect the spike recoveries. For the radioisotopic analysis and other analyses not specified above, the spikes were performed by spiking an aliquot of sample after digestion.

The laboratory does not report sample results from batch analyses that are questionable. The results from questionable batches are discarded, and the analysis is repeated. Sample cards (laboratory travelers) for the repeated analysis are reissued for analysis after they have been stamped "rerun." Laboratory travelers are issued using a computerized routine according to a "sample point." This sample point label (segment-n) on the laboratory travelers and on the gamma energy analysis (GEA) analysis reports has no relationship to the sampling activities or the sample identification. All results in this data package relate only to the composite of Sample 89-070, Sample 89-071, and Sample 89-072 which comprises core 12 from riser 2 of tank 241-U-110. The Core 12 Composite Sample was prepared by compositing 24.97 grams of segment 2 (89-070), 44.83 grams of segment 3 (89-071), and 53.13 grams of segment 4 (89-072). Segment 1 (89-069) was received empty.

The organic analysis of this sample will be performed by Pacific Northwest Laboratories (PNL). Due to instrument and procedure problems, PNL has been unable to separate organics from the normal paraffin hydrocarbon present in the samples. The results from the organic analysis will be provided when available.

Carbon-14 analysis on the undigested sample was not performed as the 222-S laboratory does not have analytical procedures that will analyze low levels of Carbon 14 in solids. The Chrome-VI analysis on the water digestion was not performed because sufficient sample to complete this analysis was not available. Sample for additional digestions was not available as this sample was completely consumed performing other analyses.

All sample results reported here by weight are reported as the "wet weight" of the sample. Some samples noticeably lost moisture during the process of aliquoting and weighing for digestion. In order to minimize errors due to loss of moisture, the percent moisture was determined at the earliest opportunity. Attempts to dry the sample before analysis resulted in approximately a tenfold increase in radiation levels. In order to reduce and control radiation exposure to laboratory personnel, the samples were not dried before aliquoting and digestion. This may result in some laboratory results being biased high.

This report is formatted into sections corresponding to the type of dissolutions performed prior to analysis. A brief summary of analytical results is reported, followed by calibration data and an analysis batch report. Any notable observations regarding an analysis are noted on the batch report for that analysis. Copies of laboratory travelers can be found in Appendix A.

SAMPLING DATA

Single Shell Tank Waste Characterization Summary of Core Sample

TANK ID:	241-U-110
RISER ID:	N/A
CORE ID:	000012

DATE SAMPLING INITIATED:	12-15-89
DATE SAMPLING COMPLETED:	01-29-90

SEGMENT		
	Lab Serial No.	F0393
1	Customer ID No.	89-069
	Last Segment?	No
	Lab Serial No.	F0417
2	Customer ID No.	89-070
	Last Segment?	No
	Lab Serial No.	F0441
3	Customer ID No.	89-071
	Last Segment?	No
	Lab Serial No.	F0465
4	Customer ID No.	89-072
	Last Segment?	Yes
	Lab Serial No.	
5	Customer ID No.	
	Last Segment?	
	Lab Serial No.	
6	Customer ID No.	
	Last Segment?	
	Lab Serial No.	
7	Customer ID No.	
	Last Segment?	

SEGMENT		
	Lab Serial No.	
8	Customer ID No.	
	Last Segment?	
	Lab Serial No.	
9	Customer ID No.	
	Last Segment?	
	Lab Serial No.	
10	Customer ID No.	
	Last Segment?	
	Lab Serial No.	
11	Customer ID No.	
	Last Segment?	
	Lab Serial No.	
12	Customer ID No.	
	Last Segment?	
	Lab Serial No.	
13	Customer ID No.	
	Last Segment?	
	Lab Serial No.	
14	Customer ID No.	
	Last Segment?	

Single Shell Tank Core Composite

LAB SEGMENT SERIAL #: F1043 CUSTOMER ID: 000012		
SIMI-VOLATILE ORGANIC ANALYSIS		
SIMI-VOA SAMPLE	LAB SERIAL #: 000012-358	DATE SAMPLED: 01-29-90
Sent to PNL for analysis.		
PARTICLE SIZE DISTRIBUTION ANALYSIS		
PARTICLE SIZE SAMPLE	LAB SERIAL #: F1043	DATE SAMPLED: 01-29-90
Homogenized Solids		
UNDIGESTED SOLIDS ANALYSIS		
LABORATORY SERIAL NUMBER FOR SAMPLE:	F1043	DATE SAMPLED: 01-29-90
LABORATORY SERIAL NUMBER OF DUPLICATE SAMPLE: F1044		
FUSION ANALYSIS OF SOLIDS		
LABORATORY SERIAL NUMBER FOR SAMPLE:	F1049	DATE SAMPLED: 01-29-90
LABORATORY SERIAL NUMBER OF DUPLICATE SAMPLE: F1050		
LABORATORY SERIAL NUMBER OF SPIKED SAMPLE: N/A		
ACID DIGESTION ANALYSIS OF SOLIDS		
LABORATORY SERIAL NUMBER FOR SAMPLE:	F1061	DATE SAMPLED: 01-29-90
LABORATORY SERIAL NUMBER OF DUPLICATE SAMPLE: F1062		
LABORATORY SERIAL NUMBER OF SPIKED SAMPLE: F1063		
WATER DIGESTION ANALYSIS OF SOLIDS		
LABORATORY SERIAL NUMBER FOR SAMPLE:	F1055	DATE SAMPLED: 01-29-90
LABORATORY SERIAL NUMBER OF DUPLICATE SAMPLE: F1056		
LABORATORY SERIAL NUMBER OF SPIKED SAMPLE: F1057		
Laboratory Notebook Reference		WHC-N-313-4
		26
Notebook No.		Page No.

SAMPLE DATA SUMMARY

Analytical Laboratory Data Summary
SINGLE SHELL TANK PROJECT

The next four pages of this report (including this page) summarizes the results for the analysis of the

**Core 12 Composite Sample
Tank 241-U-110**

UNTREATED SAMPLE RESULTS

	Sample	Duplicate
pH	12.94	12.53
% Water	40.31%	38.68%
Mercury	1.02E+00 ug/g	8.50E-01 ug/g
Cyanide	<8.00E+03 ug/g	<6.68E+03 ug/g
Carbon 14	This Analysis was not completed	

DATA SUMMARY
Sample units are Wet Weight

**Core 12 Composite
Fusion Dissolution**

Tank: 241-U-110
Customer ID: Core Composite 12

ICP Results

Radiological Analysis

	Sample	Duplicate Sample	Sample	Duplicate
Fusion	2.54 g/L	2.35 g/L	Aluminum	126995 ug/g
Total Alpha	<7.64E-01 uci/g	<7.70E-01 uci/g	Antimony	2538 ug/g
Total Beta	1.37E+03 uci/g	1.29E+03 uci/g	Barium	143 ug/g
GEA Cs-137	5.35E+01 uci/g	5.36E+01 uci/g	Beryllium	16 ug/g
Uranium	7.13E+03 ug/g	6.60E+03 ug/g	Bismuth	23941 ug/g
Plutonium	3.58E-01 uci/g	3.53E-01 uci/g	Boron	1750 ug/g
Americium 241	3.38E-02 uci/g	<3.39E-02 uci/g	Cadmium	LT
Neptunium 237	<4.25E-01 uci/g	<4.60E-01 uci/g	Calcium	4493 ug/g
Technetium 99	<7.91E-03 uci/g	<8.34E-03 uci/g	Cerium	3793 ug/g
Iodine 129	analysis not performed		Cobalt	612 ug/g
Strontium 90	4.80E+02 uci/g	4.60E+02 uci/g	Copper	393 ug/g
			Europium	69 ug/g
			Iron	16275 ug/g
			Lead	1503 ug/g
			Lithium	180 ug/g
			Magnesium	1240 ug/g
			Manganese	4238 ug/g
			Mercury	113 ug/g
			Molybdenum	152 ug/g
			Phosphorous	9129 ug/g
			Samarium	4159 ug/g
			Selenium	2036 ug/g
			Silicon	48465 ug/g
			Sodium	87949 ug/g
			Strontium	595 ug/g
			Sulfur	1434 ug/g
			Tantalum	515 ug/g
			Thallium	6072 ug/g
			Thorium	3079 ug/g
			Tin	310 ug/g
			Titanium	165 ug/g
			Vanadium	268 ug/g
			Zinc	320 ug/g
			Zirconium	716 ug/g

LT: Less Than

NC: Not Calibrated

NOT CALC: Not Calculated

Instrument Standards Outside Control Limits

DATA SUMMARY

Units For Samples Are Wet Weight

Core 12 Composite Water Digestion

Tank: 241-U-110
Customer Id.: Core 12 Composite

ICP Results

			Sample	Duplicate
Water Digestion	7.44 g/L	9.46 g/L	Aluminum	3928 ug/g
Water Digestion **	10.13 g/L	10.02 g/L	Antimony	LT
Water Digestion ***	10.03 g/L	10.09 g/L	Arsenic	76 ug/g
pH	11.65	11.71	Barium	36 ug/g
			Beryllium	2 ug/g
			Boron	565 ug/g
			Cadmium	14 ug/g
			Calcium	393 ug/g
			Cerium	1027 ug/g
			Chromium	760 ug/g
			Cobalt	LT
			Copper	75 ug/g
			Europium	23 ug/g
Fluoride	9.35E+03 ug/g	8.72E+03 ug/g	Iron	64 ug/g
Chloride	8.47E+02 ug/g	<1.07E+03 ug/g	Lanthanum	86 ug/g
Nitrate	5.09E+04 ug/g	4.93E+04 ug/g	Lithium	50 ug/g
Phosphate	4.61E+04 ug/g	4.09E+04 ug/g	Magnesium	417 ug/g
Sulfate	<1.36E+04 ug/g	<1.07E+04 ug/g	Manganese	7 ug/g
Total Organic Carbon	1.26E+03 ug/g	8.14E+02 ug/g	Mercury	52 ug/g
Ammonia	<5.87E+03 ug/g	<4.62E+03 ug/g	Molybdenum	32 ug/g
Carbonate	8.20E+03 ug/g	6.34E+03 ug/g	Neodymium	LT
Nitrite	<4.83E+01 ug/g	<3.76E+01 ug/g	Nickel	52 ug/g
			Potassium	1791 ug/g
			Selenium	535 ug/g
			Silver	78 ug/g
			Sodium	91342 ug/g
			Strontium	13 ug/g
Total Alpha	6.30E-03 uci/g	3.16E-03 uci/g	Sulfur	922 ug/g
Total Beta	6.01E-01 uci/g	6.32E-01 uci/g	Tantalum	157 ug/g
GEA Cs-137	9.13 uci/g	8.15 uci/g	Thallium	1259 ug/g
Americium 241	<4.92E-03 uci/g	<2.53E-03 uci/g	Tin	59 ug/g
Carbon 14 ***	4.22E-04 uci/g	4.60E-04 uci/g	Titanium	46 ug/g
Iodine 129	<5.47E-03 uci/g	*	Vanadium	60 ug/g
Neptunium 237	<1.45E-01 uci/g	<1.14E-01 uci/g	Zinc	46 ug/g
Plutonium	<1.59E-03 uci/g	<8.20E-04 uci/g	Zirconium	126 ug/g
Strontium 90 ***	1.16E-01 uci/g	1.39E-01 uci/g		
Technetium 99	6.99E-03 uci/g	7.22E-03 uci/g	LT: Less Than	
Tritium **	2.22E-03 uci/g	2.42E-03 uci/g	NC: Not Calibrated	
			NOT CALC: Not Calculated	
			# Instrument Standards Outside Control Limits	

Radiological Analysis

Total Alpha	6.30E-03 uci/g	3.16E-03 uci/g	Sodium	91342 ug/g
Total Beta	6.01E-01 uci/g	6.32E-01 uci/g	Strontium	13 ug/g
GEA Cs-137	9.13 uci/g	8.15 uci/g	Sulfur	922 ug/g
Americium 241	<4.92E-03 uci/g	<2.53E-03 uci/g	Tantalum	157 ug/g
Carbon 14 ***	4.22E-04 uci/g	4.60E-04 uci/g	Thallium	1259 ug/g
Iodine 129	<5.47E-03 uci/g	*	Tin	59 ug/g
Neptunium 237	<1.45E-01 uci/g	<1.14E-01 uci/g	Titanium	46 ug/g
Plutonium	<1.59E-03 uci/g	<8.20E-04 uci/g	Vanadium	60 ug/g
Strontium 90 ***	1.16E-01 uci/g	1.39E-01 uci/g	Zinc	46 ug/g
Technetium 99	6.99E-03 uci/g	7.22E-03 uci/g	Zirconium	126 ug/g
Tritium **	2.22E-03 uci/g	2.42E-03 uci/g		

Atomic Absorption Spectroscopy

Arsenic **	<4.94E-01 ug/g	<4.99E-01 ug/g
Mercury	4.64E-02 ug/g	3.03E-02 ug/g
Selenium **	7.70E-02 ug/g	7.78E-02 ug/g

* Duplicate Sample Not Analyzed.

** Analysis performed on second digestion.

*** Analysis performed on third digestion.

DATA SUMMARY
Units For Samples Are Wet Weight

**Core 12 Composite
Acid Digestion**

Tank: 241-U-110
Customer Id.: Core 12 Composite

ICP Results

Atomic Absorption Spectroscopy

Hydride Analysis

	Sample	Duplicate	Sample	Duplicate
Acid Digestion	1.04E+01 ug/L	1.01E+01 ug/L	Aluminum	58064 ug/g
			Antimony	377 ug/g
			Barium	47 ug/g
			Beryllium	2 ug/g
			Boron	176 ug/g
Arsenic	<9.62E-01 ug/g	<9.90E-01 ug/g	Cadmium	LT
			Calcium	572 ug/g
			Cerium	800 ug/g
Mercury	5.60E-01 ug/g	5.65E-01 ug/g	Chromium	541 ug/g
			Copper	65 ug/g
Selenium	1.83 ug/g	1.87 ug/g	Europium	11 ug/g
			Iron	16009 ug/g
			Lanthanum	81 ug/g
			Lithium	12 ug/g
			Magnesium	484 ug/g
			Manganese	3691 ug/g
			Mercury	349 ug/g
			Molybdenum	29 ug/g
			Nickel	125 ug/g
			Potassium	LT
			Samarium	666 ug/g
			Selenium	779 ug/g
			Silver	LT
			Sodium	86886 ug/g
			Strontium	434 ug/g
			Sulfur	624 ug/g
			Tantalum	102 ug/g
			Tin	103 ug/g
			Titanium	39 ug/g
			Vanadium	61 ug/g
			Zinc	117 ug/g
			Zirconium	126 ug/g

LT: Less Than

NC: Not Calibrated

NOT CALC: Not Calculated

Instrument Standards Outside Control Limits

DATA SUMMARY
Units For Samples Are Wet Weight

**Core 12 Composite
Acid Digestion**

Tank: 241-U-110
Customer Id.: Core 12 Composite

Atomic Absorption Spectroscopy
Hydride Analysis

ICP Results

	Sample	Duplicate	Sample	Duplicate
Acid Digestion	1.04E+01 ug/L	1.01E+01 ug/L	Aluminum	58064 ug/g
			Antimony	377 ug/g
			Barium	47 ug/g
			Beryllium	2 ug/g
			Boron	176 ug/g
Arsenic	<9.62E-01 ug/g	<9.90E-01 ug/g	Cadmium	LT
			Calcium	572 ug/g
			Cerium	800 ug/g
Mercury	5.60E-01 ug/g	5.65E-01 ug/g	Chromium	541 ug/g
			Copper	65 ug/g
Selenium	1.83 ug/g	1.87 ug/g	Europium	11 ug/g
			Iron	16009 ug/g
			Lanthanum	81 ug/g
			Lithium	12 ug/g
			Magnesium	484 ug/g
			Manganese	3691 ug/g
			Mercury	349 ug/g
			Molybdenum	29 ug/g
			Nickel	125 ug/g
			Potassium	LT
			Samarium	666 ug/g
			Selenium	779 ug/g
			Silver	LT
			Sodium	86886 ug/g
			Strontium	434 ug/g
			Sulfur	624 ug/g
			Tantalum	102 ug/g
			Tin	103 ug/g
			Titanium	39 ug/g
			Vanadium	61 ug/g
			Zinc	117 ug/g
			Zirconium	126 ug/g

LT: Less Than

NC: Not Calibrated

NOT CALC: Not Calculated

Instrument Standards Outside Control Limits

PHYSICAL TEST ANALYSIS

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	WA63090/WA58053
PROCEDURE/REV	LI-000-200
TECHNOLOGIST	D. B. Bechtold
DATE	March 13, 1990
TEMPERATURE	N/A
STARTING TIME	N/A
ENDING TIME	N/A
CHEMIST	D. B. Bechtold

Thermographic/Differential
Calorimeter Analysis

Undigested Sample

	DESCRIPTION	LAB ID
1	Thermographic Analysis	F1043
2	Diff. Scanning Calorimeter	F1043
3		
4		
5		
6		
7		
8		
9		
10		
11		

	DESCRIPTION	LAB ID
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
N/A				

8

SST, B000357, F1043, AIR

WT: 6.5050 mg SCAN RATE: 20.00 deg/min

102.00

FROM: 41.96
TO: 149.16
WT. % CHANGE: 26.73

FROM: 149.16
TO: 499
WT. % CHANGE: 6.53

inflection 90°

70.93%

64.39%

7

75.00

50.00

8.00

52.00

102.00

152.00

202.00

252.00

302.00

352.00

402.00

452.00

50

D9B, SBK

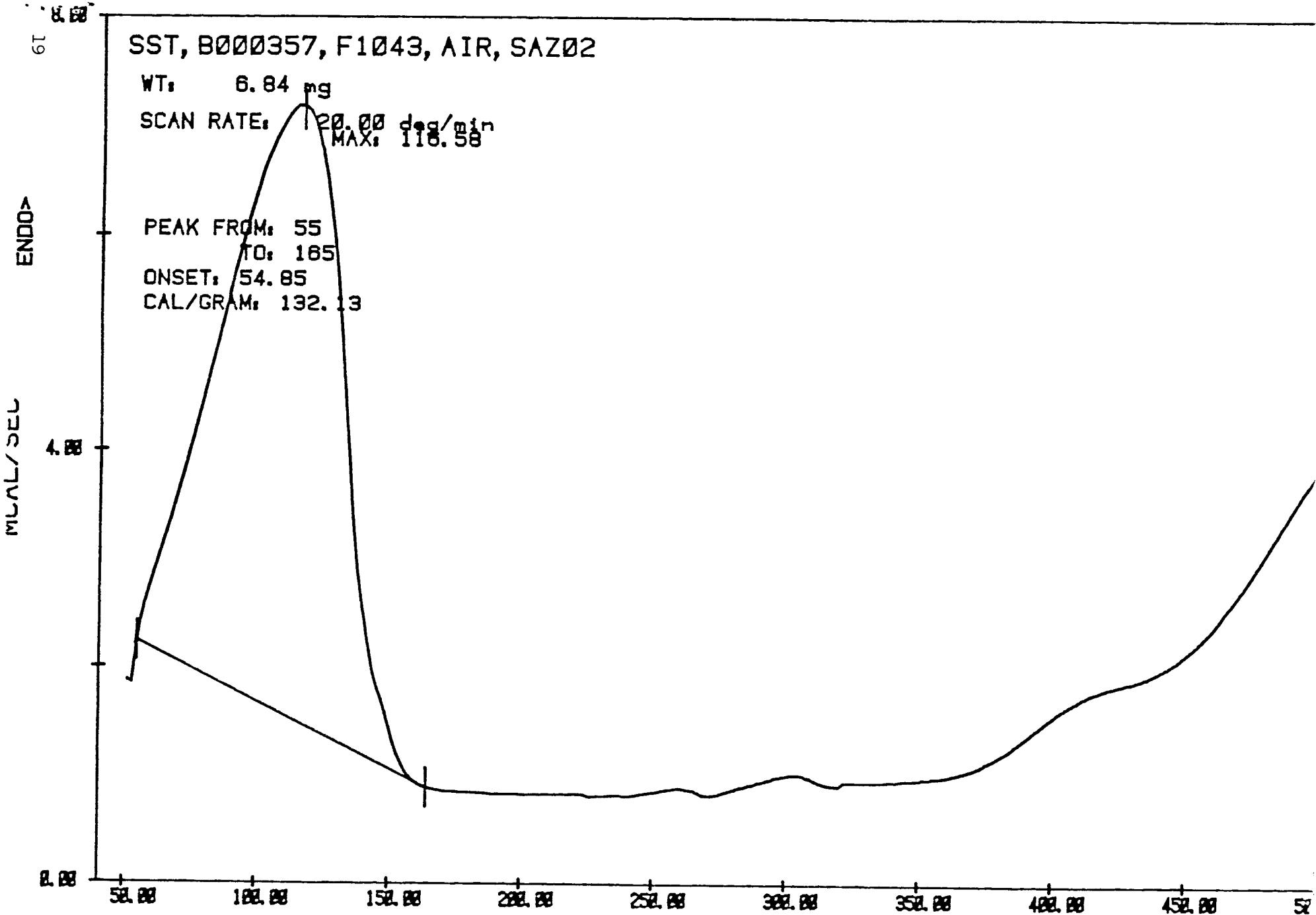
FILE: F1043.TG

Temperature (C)

TG

DATE: 09/03/12

TIME: 15:03



D98/SBK

FILE: F1043.D4

TEMPERATURE (C)

DSC

DATE: 09/03/09 TIME: 09:08

UNDIGESTED SAMPLE ANALYSIS

Single Shell Tank Project

Untreated Sample Results

Tank: 241-U-110
 Customer ID: Core 12 Composite

	Check Standard	Blank	Sample	Duplicate Sample	Spike of Sample	Check Standard
Laboratory ID: pH	F1041 100.80%	F1042 4.81	F1043 12.94	F1044 12.53		F1046 100.40%
Laboratory ID: % Water	F1041 96.40%	F1042 9.15E+03 ug	F1043 40.31%	F1044 38.68%		F1046 95.20%
Laboratory ID: Mercury	F1041 95.20%	F1042 <1.00E-02 ug/g	F1043 1.02 ug/g	F1044 8.50E-01 ug/g	F1045 80.00%	F1046 95.20%
Laboratory ID: Cyanide	F1041 94.40%	F1042 <5.00E+02 ug/g	F1043 <8.00E+03 ug/g	F1044 <6.68E+03 ug/g	F1045 95.50%	F1046 93.50%

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	N/A
PROCEDURE/Rev	LA-212-103/A-1
TECHNOLOGIST	M. Franz
DATE	February 28, 1990
TEMPERATURE	23.5 C
STARTING TIME	0800
ENDING TIME	1330
CHEMIST	R. E. Brandt

pH of Undigested Sample

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	F1041
2	Reagent Blank	F1042
3	Sample Comp 12	F1043
4	Duplicate Sample Comp 12	F1044
5	Final LMCS Check Std	F1046
6		
7		
8		
9		
10		
11		

	DESCRIPTION	LAB ID
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	72C11B/1 mL			1 mL

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	WA90787
PROCEDURE/Rev	LA-564-101/D-1
TECHNOLOGIST	R. D. Hale
DATE	February 21, 1990
TEMPERATURE	120 C
STARTING TIME	0900 02-20-90
ENDING TIME	1100 02-21-90
CHEMIST	R. E. Brandt

% Water in the Undigested Sample.

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	F1041
2	Reagent Blank	F1042
3	Sample Comp 14	F0995
4	Duplicate Sample Comp 14	F0996
5	Sample Comp 12	F1043
6	Duplicate Sample Comp 12	F1044
7	Final LMCS Check Std	F1046
8		
9		
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11		

	DESCRIPTION	LAB ID
12		
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STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	11C11AH/1 mL			N/A

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	WA77479
PROCEDURE/Rev	LA-325-102/A-2
TECHNOLOGIST	M. Meyers
DATE	July 18, 1990
TEMPERATURE	N/A
STARTING TIME	1330
ENDING TIME	1430
CHEMIST	R. K. Fuller

Mercury Analysis

Undigested Sample

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	F1041
2	Reagent Blank	F1042
3	Sample Comp 12	F1043
4	Duplicate Sample Comp 12	F1044
5	Spike Sample Comp 12	F1045
6	Final LMCS Check Std	F1046
7		
8		
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10		
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	DESCRIPTION	LAB ID
12		
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STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	58C11CE/.025 mL			25 mL
Spike	58C11CE/.025 mL	F1043/.0304 g		25 mL

Single Shell Tank Calibration Record

ANALYTE: Hg

PROCEDURE: LA-325-102

REVISION: A-1

INSTRUMENT: Perkin-Elmer AA

PROPERTY NUMBER: WA77479

TECHNOLOGIST: M. Meyers

PAYROLL NUMBER: 6C823

DATE: July 19, 1990

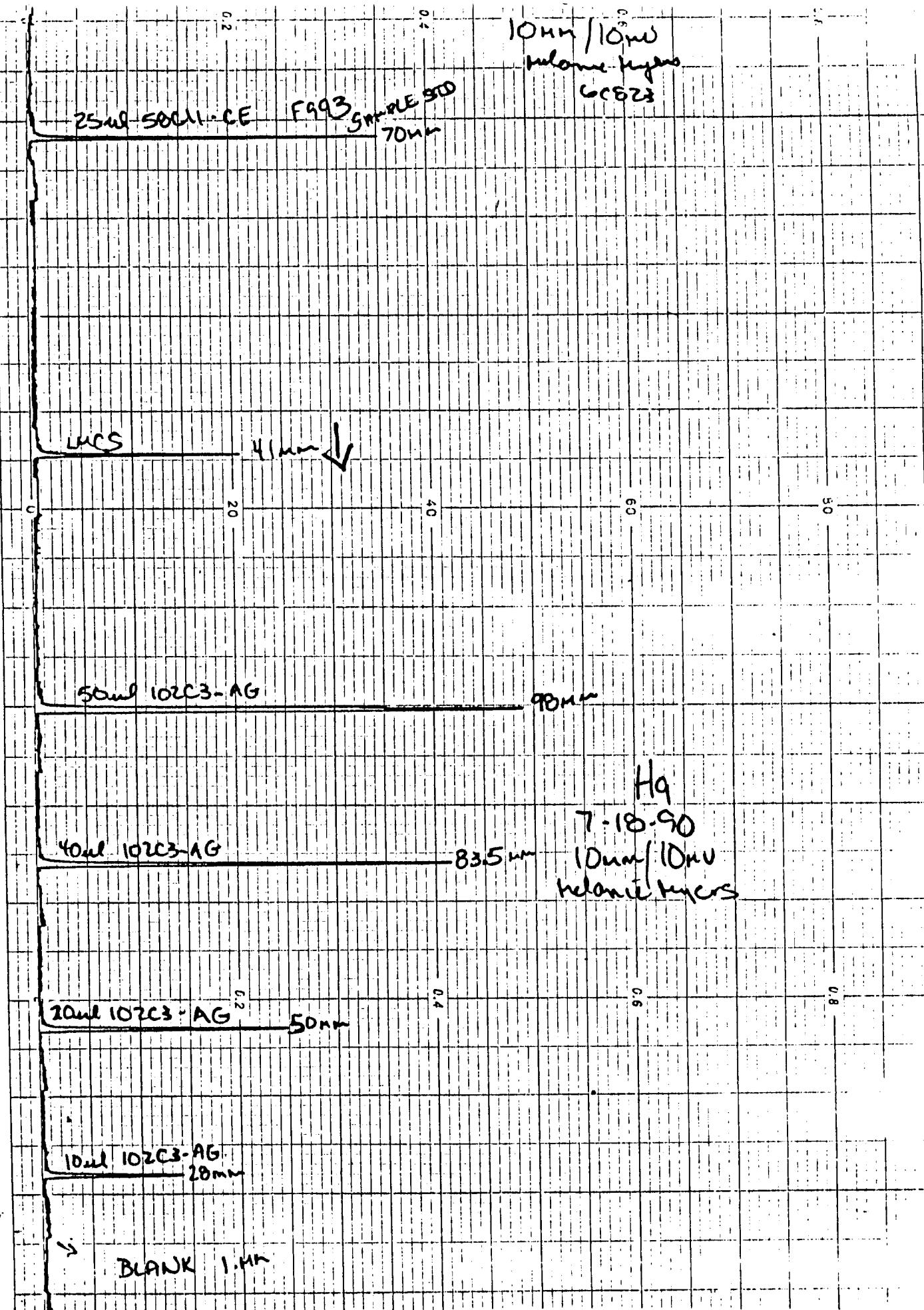
CALIBRATION STANDARD ID: 102C3-AG

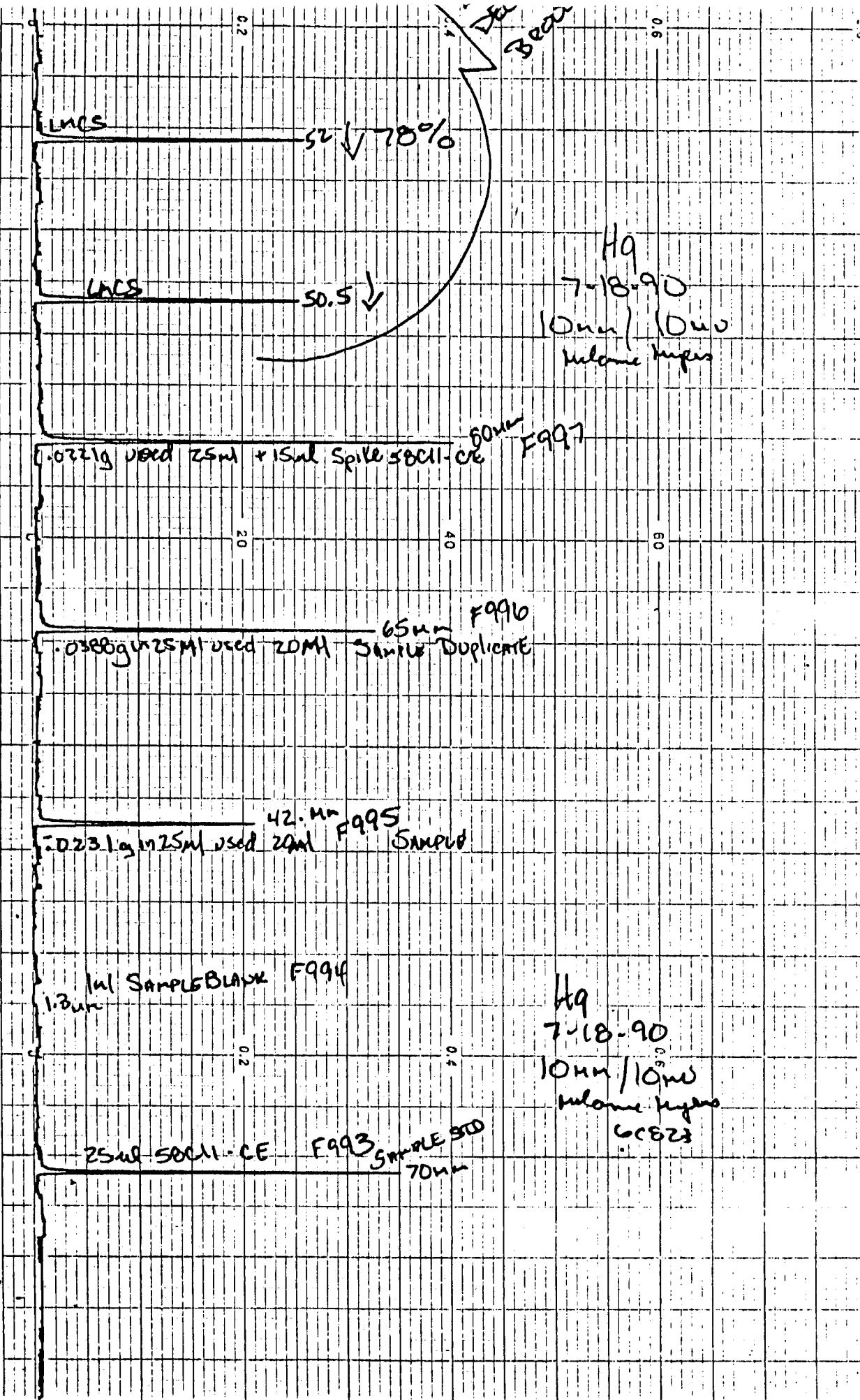
ANALYTE CONCENTRATION: 1.00 ppm

TYPE OF CALIBRATION: Linear Regression

Aliquot	Weight	Instrument Reading Units= mm
0 uL	0 ng	1.0
10 uL	10 ng	28.0
20 uL	20 ng	50.0
40 uL	40 ng	83.5
50 uL	50 ng	98.0

COMMENTS:





25ml 58C11-CE F1046 STO
sharp end
63mm

62mm F1045
.0304g in 26ml used 20ml + 10ml 58C11-CE

103.2g in 25ml used 20ml F1044
Sample 58C11-CE

.0313g in 25ml used 20ml 54.8mm F1043
Sample 58C11-CE

20mm
1ml Sample 58C11-CE F1042

Hg
7-18-90
On m/10ml
Melanie Myers

25ml 58C11-CE F1041 STO
sharp end

25ml 58C11-CE F998 90.65%
sqmm

cnCS

4.1mm

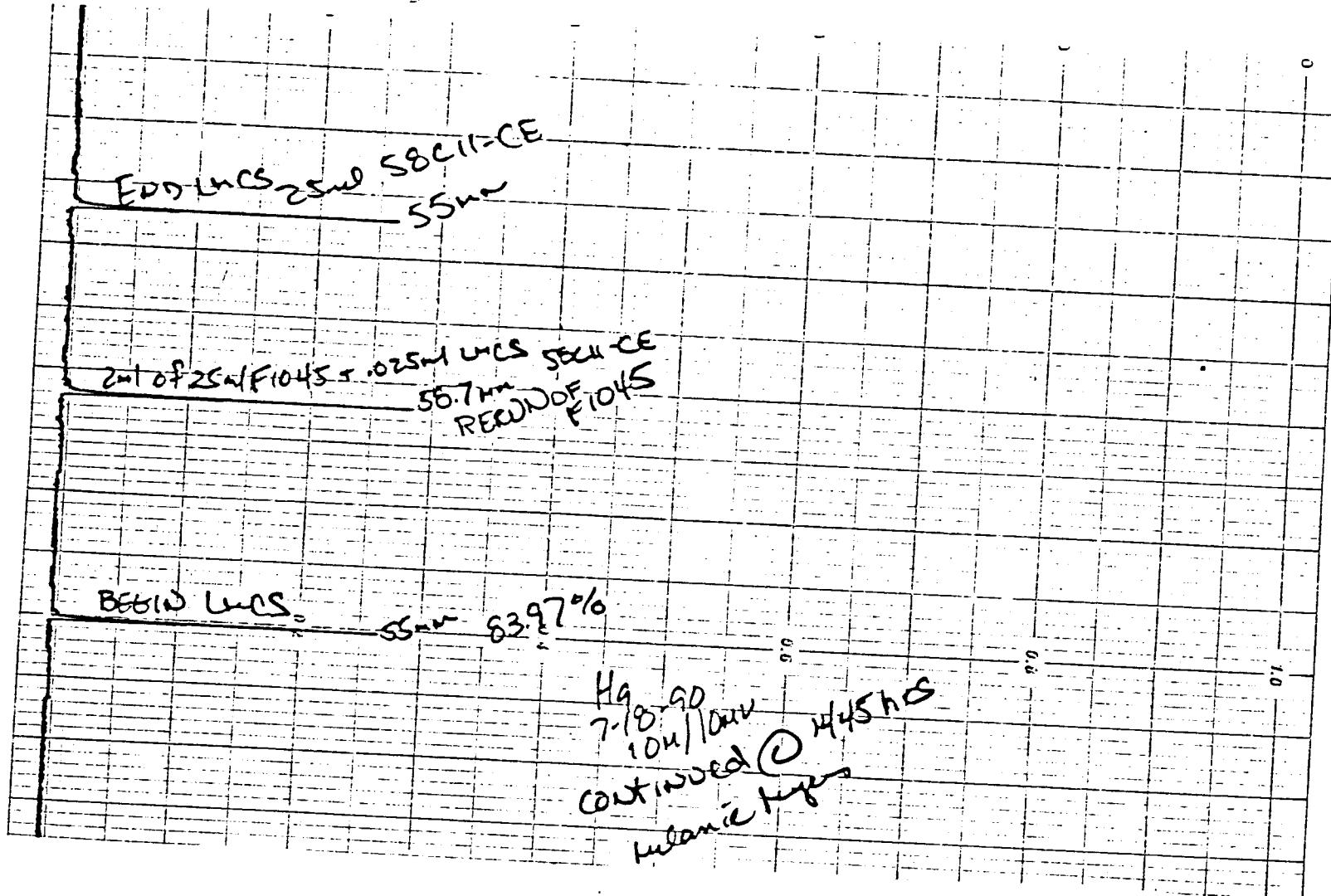
cnCS

4.7mm

Lamp gain
DECREASES TO 65
3000ft JP P 69

PERKIN-ELMER

Chart No. CP33402-0



SEQUENCE # : 234

MT 1: 0.09703

MT 2: 0.0691

NET WEIGHT:

----> 0.0691 GRAMS

07/18/90 @ 09:21:54

JET_M1 REU 0 09

SEQUENCE # : 235

MT 1: 26.6579

MT 2: 26.6810

f995

NET WEIGHT:

----> 0.0231 GRAMS

07/18/90 @ 09:23:44

JET_M1 REU 0 09

SEQUENCE # : 236

MT 1: 27.0999

MT 2: 27.1387

f996

NET WEIGHT:

----> 0.0388 GRAMS

07/18/90 @ 09:24:53

JET_M1 REU 0 09

SEQUENCE # : 237

MT 1: 26.55848

MT 2: 26.6061

f997

NET WEIGHT:

----> 0.0221 GRAMS

07/18/90 @ 09:26:17

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	N/A
PROCEDURE/REV	LA-695-101/A-2
TECHNOLOGIST	M. Franz
DATE	June 22, 1990
TEMPERATURE	N/A
STARTING TIME	0900
ENDING TIME	1400
CHEMIST	R. E. Brandt

Cyanide Analysis

Undigested Sample

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	F1041
2	Reagent Blank	F1042
3	Sample Comp 12	F1043
4	Duplicate Sample Comp 12	F1044
5	Spike Sample Comp 12	F1045
6	Final LMCS Check Std	F1046
7		
8		
9		
10		
11		

	DESCRIPTION	LAB ID
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

STANDARD TYPE	PRIMARY Book # & ALIQUOT VOL.	SECOND Book # & ALIQUOT VOL.	THIRD Book # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	75C11F/.005 mL			50 mL
Spike	75C11F/.005 mL	F1043/.0916 g		50 mL

Single Shell Tank Calibration Record

ANALYTE: CN-

PROCEDURE: LA-695-101

REVISION: A-1

INSTRUMENT: Baush & Lomb Spectronic 21

PROPERTY NUMBER: WA66684

TECHNOLOGIST: R.Brandt

PAYROLL NUMBER: 69090

DATE: July 20, 1989

CALIBRATION STANDARD ID: 88C15C

ANALYTE CONCENTRATION: 817 ug/ml

TYPE OF CALIBRATION: Least Square Linear Regression

Dilution	Concentration	Instrument Reading Units= Abs.
Blank	0	0.016
100 ul	81.7 ug	0.091
200 ul	163.4 ug	0.150
500 ul	408.5 ug	0.354
1000 ul	817.0 ug	0.663
2000 ul	1634.0 ug	1.275
3000 ul	2451.0 ug	1.720

COMMENTS: Y - intercept - 0.01682

Slope - 0.076317

Correlation Coefficient - 0.999874

KOH FUSION ANALYSIS

Single Shell Tank Project

**Fusion Analysis
Laboratory Results of Solids
Units are Sample Wet Weight**

Tank: 241-U-110
Customer ID: Core 12 Composite

	Check Standard	Blank	Sample	Duplicate Sample	Spike of Sample	Check Standard
Laboratory ID: Fusion	F1072 Complete		F1049 2.54 g/L	F1050 2.35 g/L		
Total Alpha	F1047 99.10%	<2.81E-02 uci/L	<7.64E-01 uci/g	<7.70E-01 uci/g	*	98.60%
Total Beta	102.20%	<1.93E-01 uci/L	1.37E+03 uci/g	1.29E+03 uci/g	*	104.40%
Laboratory ID: GEA Cs-137	F1047 103.40%	<6.23E-02 uci/L	F1049 5.35E+01 uci/g	F1050 5.36E+01 uci/g	F1057 96.50%	F1058 108.60%
Laboratory ID: Uranium	F0999 87.80%	<9.19E-05 g/L	F1049 7.13E+03 ug/g	F1050 6.60E+03 ug/g	F1003 88.00%	F1052 89.20%
Laboratory ID: Plutonium	F1047 105.60%	<8.29E-03 uci/L	F1049 3.58E-01 uci/g	F1050 3.53E-01 uci/g	F1081 101.70%	F1082 98.10%
Laboratory ID: Americium 241	F1047 106.00%	<2.28E-02 uci/L	F1049 3.38E-02 uci/g	F1050 <3.39E-02 uci/g	F1075 101.30%	F1076 106.60%
Laboratory ID: Neptunium	F0999 67.00%	F1000 <1.08 uci/L	F1049 <4.25E-01 uci/g	F1050 <4.60E-01 uci/g	F1075 61.50%	F1076 65.50%
Laboratory ID: Technetium 99	F1047 97.10%	<1.95E-02 uci/L	F1049 <7.91E-03 uci/g	F1050 <8.34E-03 uci/g	F1051 105.90%	F1052 92.80%
Laboratory ID: Strontium 90	F0975 97.70%	6.10E-02 uci/L	F1049 4.80E+02 uci/g	F1050 4.60E+02 uci/g	F1003 *	F1004 100.30%

* Spike Recovery Too Low To Calculate.

ICP Results

DATA SUMMARY

		Acid Digested Standard	
Date Analyzed:	MAY 14, 1990	Reagent Blank	NONE
Procedure:	LA-505-151/A-0	Core 12 Composite	F1024
Analyst:	J. A. WHITE	Duplicate of Core 12 Composite	F1049
Digestion	Acid Digestion	Spike of Core 15 Composite	F1050
Procedure:	LA-505-159/A-0	Acid Digested Standard	F1027
			NONE

	LMCS Standard %	Reagent Blank ppm	Sample ug/g	Duplicate Sample ug/g	Spike Recovery %	LMCS Standard %
Aluminum	101.32%	4.15	126995.	125507.33		99.98%
Antimony	105.82%	4.54	2538.	1510.		102.98%
Barium	95.80%	0.12	143.	24. LT		97.52%
Beryllium	99.06%	0.01 LT	16.	4. LT		95.66%
Bismuth	106.95%	1.08 LT	23941.	21173.	111.87%	108.57%
Boron	98.09%	0.35	1750.	1349.	101.28%	99.35%
Cadmium	95.68%	0.01 LT	12. LT	-25. LT	98.90%	95.14%
Calcium	97.51%	0.73	4493.	3799.	101.45%	99.55%
Cerium	94.87%	4.85	3793.	135. LT		91.05%
Cobalt	93.13%	1.96	612.	346.		92.81%
Copper	97.45%	0.24 LT	393.	164. LT	101.62%	98.59%
Europium	92.78%	0.08	69.	-8. LT		96.77%
Iron	100.01%	1.40	16275.	16088.		101.46%
Lead	105.54%	4.09	1503.	1590.	108.07%	105.63%
Lithium	91.80%	0.23	180.	-9. LT		93.04%
Magnesium	98.86%	1.37	1240.	897.	102.34%	100.47%
Manganese	96.90%	0.05	4238.	4097.		97.50%
Mercury	100.70%	0.50	113.	9. LT		98.32%
Molybdenum	99.11%	0.06 LT	152.	23. LT		96.25%
Phosphorous	95.15%	2.74	9129.	10495.	110.96%	90.03%
Samarium	103.52%	5.45	4159.	-377. LT		96.08%
Selenium	103.51%	2.15	2036.	1083.		100.40%
Silicon	91.20%	2.82	48465.	64052.		89.20%
Sodium	94.89%	7.19	87949.	91486.		94.72%
Strontium	97.60%	0.07	595.	543.		99.66%
Sulfur	100.23%	1.25	1434.	1059.		96.31%
Tantalum	98.66%	0.60 LT	515.	-33. LT		95.18%
Thallium	104.45%	4.84	6072.	-281. LT		101.41%
Thorium	103.99%	4.21	3079.	127. LT		107.45%
Tin	98.18%	0.18 LT	310.	148. LT		97.72%
Titanium	104.00%	0.10 LT	165.	38. LT		101.98%
Vanadium	100.34%	-0.02 LT	268.	-37. LT		95.59%
Zinc	96.78%	0.18	320.	310.	100.03%	96.88%
Zirconium	102.68%	0.60	716.	245.		100.68%

Single Shell Tank Project

**Fusion Analysis
Results Of The Laboratory Digestion**

Tank: 241-U-110
Customer ID: Core 12 Composite

	Check Standard	Blank	Sample	Duplicate Sample	Spike of Sample	Check Standard
Laboratory ID: Fusion		F1072 Complete	F1049 2.54 g/L	F1050 2.35 g/L		
Laboratory ID: Total Alpha Total Beta	F1047 99.10% 102.20%	F1048 <2.81E-02 uci/L <1.93E-01 uci/L	F1049 <1.94 uci/L 3.49E+03 uci/L	F1050 <1.81E uci/L 3.04E+03 uci/L	F1075 * *	F1076 98.60% 104.40%
Laboratory ID: GEA Cs-137	F1047 103.40%	F1048 <6.23E-02 uci/L	F1049 1.36E+02 uci/L	F1050 1.26E+02 uci/L	F1057 96.50%	F1058 108.60%
Laboratory ID: Uranium	F0999 87.80%	F1000 <9.19E-05 g/L	F1049 1.81E-02 g/L	F1050 1.55E-02 g/L	F1003 88.00%	F1052 89.20%
Laboratory ID: Plutonium	F1047 105.60%	F1048 <8.29E-03 uci/L	F1049 9.10E-01 uci/L	F1050 8.30E-01 uci/L	F1081 101.70%	F1082 98.10%
Laboratory ID: Americium 241	F1047 106.00%	F1048 <2.28E-02 uci/L	F1049 8.59E-02 uci/L	F1050 <7.96E-02 uci/L	F1075 101.30%	F1076 106.60%
Laboratory ID: Neptunium	F0999 67.00%	F1000 <1.08 uci/L	F1049 <1.08 uci/L	F1050 <1.08 uci/L	F1075 61.50%	F1076 65.50%
Laboratory ID: Technetium 99	F1047 97.10%	F1048 <1.95E-02 uci/L	F1049 <2.01E-02 uci/L	F1050 <1.96E-02 uci/L	F1051 105.90%	F1052 92.80%
Laboratory ID: Strontium 90	F0975 97.70%	F0976 6.10E-02 uci/L	F1049 1.22E+03 uci/L	F1050 1.08E+03 uci/L	F1003 *	F1004 100.30%

* Spike Recovery Too Low To Calculate.

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	N/A
PROCEDURE/Rev	LA-549-141/A-1
TECHNOLOGIST	R. Hale
DATE	February 22, 1990
TEMPERATURE	450 C
STARTING TIME	1730
ENDING TIME	1830
CHEMIST	S. A. Catlow

Fusion Dissolution

	DESCRIPTION	LAB ID
1	Reagent Blank	F1072
2	Sample Comp 12	F1049
3	Duplicate Sample Comp 12	F1050
4	Sample Comp 13	F1073
5	Duplicate Sample Comp 13	F1074
6		
7		
8		
9		
10		
11		

	DESCRIPTION	LAB ID
12		
13		
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19		
20		
21		
22		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
N/A				

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	WA57276
PROCEDURE/REV	LA-508-101/C-2
TECHNOLOGIST	R. Hale
DATE	February 23, 1990
TEMPERATURE	N/A
STARTING TIME	1100
ENDING TIME	1200
CHEMIST	S. A. Catlow

Total Alpha & Total Beta Analysis.

Fusion Dissolution

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	F1047
2	Reagent Blank	F1048
3	Sample Comp 12	F1049
4	Duplicate Sample Comp 12	F1050
5	Sample Comp 13	F1073
6	Duplicate Sample Comp 13	F1074
7	Spike Sample Comp 13	F1075
8	Final LMCS Check Std	F1076
9		
10		
11		

	DESCRIPTION	LAB ID
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	102B44/10 mL			N/A
Spike	102B44/10 mL	F1049/1 uL		N/A

Single Shell Tank Calibration Record

ANALYTE:	Co ⁶⁰		
PROCEDURE:	LQ-508-002	REVISION:	A-0
INSTRUMENT:	Detector #14	PROPERTY NUMBER:	WA57276
TECHNOLOGIST:	R.A. Jones	PAYROLL NUMBER:	65801
DATE:	November 28, 1988		
CALIBRATION STANDARD ID: 32B40A8; 32B40B7; 32B40C7; 32B40A4; 32B40B3; 32B40C4; 32B40A5; 32B40B6; 32B40C5			
ANALYTE CONCENTRATION:	N/A		
TYPE OF CALIBRATION:	Efficiency		

SST-103 Rev. (Draft) 9/15/90 Short Interim

CALIBRATION SHEET FOR ALPHA/BETA SYSTEMS: USING PROCEDURE LQ-508-002

DETECTOR No.	14	2", 5" STD TIME ZERO DATE (HD): 15883
RADIONUCLIDE:	Co-60	1" STD TIME ZERO DATE (HD): 15883
HALF LIFE:	1925	DATE COUNTED (HD): 16135
COUNT TIME:	5	DATE COUNTED 1" (HD) 16135
CPM BKG:	19	
CPM 1" BKG:	19	

CALIBRATED BY: RA JONES HD 0 = 09/25/44

STANDARD ID	SIZE	DATE	TIME	COUNTS @ 0 DEG.	COUNTS @ 90 DEG.	COUNTS @ 180 DEG.	COUNTS @ 270 DEG.
32B40A8	1	11/28/88	1313	94851	93909	94136	94073
32B40B7	1	11/28/88	1325	180320	178550	178878	179065
32B40C7	1	11/28/88	1338	260104	258654	259795	259469
32B40A4	2	11/28/88	1349	90411	89596	89705	90717
32B40B3	2	11/28/88	1527	170657	169556	169500	170301
32B40C4	2	11/28/88	1540	244082	244246	243016	249016
32B40A5	5	11/28/88	1551	83403	82448	82728	84312
32B40B6	5	11/28/88	1603	160402	163149	162823	159622
32B40C5	5	11/28/88	1616	237343	232578	231827	23179
STANDARD ID	SIZE	STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY	
32B40A8	1"	69550	18829	1.09	20618	0.2964	
32B40B7	1"	134700	35822	1.09	39224	0.2912	
32B40C7	1"	201000	51882	1.09	56810	0.2826	
AVERAGE, 1" =		0.2901 +/- @95%	0.0137	4.71 %	ON	11/28/88	
STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY	
32B40A4	2"	70480	18002	1.09	19712	0.2797	
32B40B3	2"	135100	33982	1.09	37209	0.2754	
32B40C4	2"	202400	48999	1.09	53653	0.2651	
AVERAGE, 2" =		0.2734 +/- @95%	0.0147	5.38 %	ON	11/28/88	
STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY	
32B40A5	5"	70160	16626	1.09	18205	0.2595	
32B40B6	5"	135700	32281	1.09	35347	0.2605	
32B40C5	5"	201900	46658	1.09	51090	0.2530	
AVERAGE, 5" =		0.2577 +/- @95%	0.0079	3.07 %	ON	11/28/88	
NEW EFFS FOR DET		14 Co-60	1" =	0.2901	2" =	0.2734	
			5" =	0.2577			

Single Shell Tank Calibration Record

ANALYTE: Am^{241}	
PROCEDURE:	LQ-508-002
INSTRUMENT:	Detector #14
TECHNOLOGIST:	R.A. Jones
DATE: November 28, 1988	
CALIBRATION STANDARD ID: 36B40A8; 36B40B7; 36B40C7; 36B40A3; 36B40B3; 36B40C3; 36B40A6; 36B40B6; 36B40C5	
ANALYTE CONCENTRATION: N/A	
TYPE OF CALIBRATION: Efficiency	

SST-103 Rev. (Draft) 9/15/90 Short Interim

CALIBRATION SHEET FOR ALPHA/BETA SYSTEMS: USING PROCEDURE LQ-508-002

DETECTOR No. 14

TIME ZERO DATE (HD): 15897

RADIONUCLIDE: Am-241

DATE COUNTED (HD): 16135

HALF LIFE: 154497

COUNT TIME: 5

CPM BKG: 0.5

CALIBRATED BY: RA JONES HD 0 = 09/25/44

STANDARD ID	SIZE	DATE	TIME	COUNTS @ 0 DEG.	COUNTS @ 90 DEG.	COUNTS @ 180 DEG.	COUNTS @ 270 DEG.
36B40A8	1	11/28/88	1115	83719	83889	83820	84087
36B40B7	1	11/28/88	1128	147778	147414	147378	147313
36B40C7	1	11/28/88	1142	212324	211727	211106	211442
36B40A3	2	11/28/88	1155	67029	66485	66532	66137
36B40B3	2	11/28/88	1207	116432	117580	116643	116507
36B40C3	2	11/28/88	1221	167025	166472	166682	166167
36B40A6	5	11/28/88	1234	64835	64744	63542	64860
36B40B6	5	11/28/88	1246	132366	127335	127267	127511
36B40C5	5	11/28/88	1300	176904	172226	170187	173840
STANDARD ID	SIZE	STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY	
36B40A8	1"	60570	16775	1.00	16793	0.2773	
36B40B7	1"	109900	29494	1.00	29525	0.2687	
36B40C7	1"	159700	42329	1.00	42375	0.2653	
AVERAGE, 1" =		0.2704 +/- 0.095%	0.0121	4.46 %	ON	11/28/88	
STANDARD ID	SIZE	STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY	
36B40A3	2"	61800	13309	1.00	13323	0.2156	
36B40B3	2"	110700	23358	1.00	23383	0.2112	
36B40C3	2"	161400	33317	1.00	33352	0.2066	
AVERAGE, 2" =		0.2111 +/- 0.095%	0.0088	4.15 %	ON	11/28/88	
STANDARD ID	SIZE	STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY	
36B40A6	5"	59470	12899	1.00	12912	0.2171	
36B40B6	5"	109800	25723	1.00	25751	0.2345	
36B40C5	5"	160100	34657	1.00	34694	0.2167	
AVERAGE, 5" =		0.2228 +/- 0.095%	0.0199	8.95 %	ON	11/28/88	
-----		NEW EFFS FOR DET	14 Am-241	1" =	0.2704	2" =	0.2111
-----				5" =	0.2228		

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	WA401934/WA77228
PROCEDURE/REV	LA-548-121/C-2
TECHNOLOGIST	R. Hale
DATE	February 28, 1990
TEMPERATURE	23 C
STARTING TIME	1400
ENDING TIME	1500
CHEMIST	S. A. Catlow

GEA Analysis

KOH Fusion

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	F1047
2	Reagent Blank	F1048
3	Sample Comp 12	F1049
4	Duplicate Sample Comp 12	F1050
5	Sample Comp 12	F1055
6	Duplicate Sample Comp 12	F1056
7	Spike Sample Comp 12	F1057
8	Final LMCS Check Std	F1058
9		
10		
11		

	DESCRIPTION	LAB ID
12		
13		
14		
15		
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20		
21		
22		

STANDARD TYPE	PRIMARY Book # & ALIQUOT VOL.	SECOND Book # & ALIQUOT VOL.	THIRD Book # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	122B44/.500 mL			N/A
Spike	122B44/.500 mL	F1055/1.00 mL		N/A

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	53.47	26.91	1.09	2215.	1227.	12.0	
1B		27.06			123.	34.3	
2C	1127.44	563.62	1.52	2503.	2278.	7.0	CS-134, EU-152
3C	1139.60	569.70	1.52	2442.	4332.	5.7	CS-134, BI-207
4	1210.43	605.11	1.65	2493.	27916.	1.3	CS-134
5	1324.37	662.07	1.67	1848.	52285.	0.9	CS-137
5B		661.35			379.	12.7	
6C	1592.75	796.26	1.75	1637.	20417.	1.9	CS-134
7C	1604.93	802.35	1.75	1556.	1991.	9.5	CS-134
8?	2337.07	1168.52	2.10	968.	398.	39.8	CS-134
9?	2347.71	1173.85	2.10	851.	26660.	1.5	CO-60
10	2666.55	1333.36	2.36	328.	24002.	1.3	CO-60
11	2731.98	1366.10	2.28	122.	547.	10.7	CS-134
12	2803.13	1401.70	2.51	99.	251.	18.1	BI-214
13	2922.97	1461.66	2.47	73.	793.	7.8	K-40
13B		1460.80			854.	7.1	

ERROR QUOTATION AT 1.96 SIGMA
 PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY
 ? - MULTIPLET ANALYSIS CONVERGED BUT GFIT > 4
 B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0014
 BACKGROUND DESCRIPTION: BKG
 BACKGROUND COLLECT STARTED ON 8-SEP-89 AT 12:00:00
 BACKGROUND LIVE TIME: 3000. SECONDS

SAMPLE: F1047 SEG/COMP#7

DATA COLLECTED ON 27-FEB-90 AT 18:27:05

DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN $\mu\text{Ci}/\text{LI}$			ENERGY COMPARISON (KEV)		
	MEASURED	ERROR	DECAY CORRECTED	ERROR	EXPECT	DIFF
AC-228	LLD<3.80E-01		LLD<3.80E-01		911.07	
AG-108M	LLD<7.39E-02		LLD<7.39E-02		433.94	
AG-110M	LLD<3.20E-01		LLD<3.20E-01		657.76	
AM-241	LLD<3.49E-01		LLD<3.49E-01		59.54	
AM-243	LLD<8.33E-02		LLD<8.33E-02		74.67	
AR-41	LLD<6.58E-02		LLD<6.58E-02		1293.64	
AU-198	LLD<7.49E-02		LLD<7.49E-02		411.80	
BA-133	LLD<9.49E-02		LLD<9.49E-02		356.02	
BA-139	LLD<1.89E-01		LLD<1.89E-01		165.85	
BA-140	LLD<2.78E-01		LLD<2.78E-01		537.27	
BA-141	LLD<1.86E-01		LLD<1.86E-01		190.23	
BE-7	LLD<7.24E-01		LLD<7.24E-01		477.59	
BI-207	LLD<7.18E-02		LLD<7.18E-02		569.70	
BI-212	LLD<1.02E+00		LLD<1.02E+00		727.27	
BI-214	LLD<5.46E-01		LLD<5.46E-01		609.32	
CD-109	LLD<1.17E+00		LLD<1.17E+00		88.03	
CE-139	LLD<4.26E-02		LLD<4.26E-02		165.85	
CE-141	LLD<6.39E-02		LLD<6.39E-02		145.44	
CEPR144	LLD<5.25E-01		LLD<5.25E-01		133.51	
CO-56	LLD<8.75E-02		LLD<8.75E-02		846.76	
CO-57	LLD<3.52E-02		LLD<3.52E-02		122.06	
CO-58	LLD<8.19E-02		LLD<8.19E-02		810.75	
CO-60	2.21E+01	+ -3.25E-01	2.21E+01	+ -3.25E-01	1332.50	0.86
					1173.24	0.61
CR-51	LLD<5.24E-01		LLD<5.24E-01		320.09	
CS-134	1.39E+01	+ -2.82E-01	1.39E+01	+ -2.82E-01	795.84	0.42
					604.70	0.41
CS-136	LLD<7.88E-02		LLD<7.88E-02		818.51	
CS-137	3.00E+01	+ -3.53E-01	3.00E+01	+ -3.53E-01	661.65	0.42
CS-138	LLD<8.60E-02		LLD<8.60E-02		1435.86	
EU-152	LLD<2.51E-01		LLD<2.51E-01		1408.01	
EU-154	LLD<1.61E-01		LLD<1.61E-01		1274.45	
EU-155	LLD<1.48E-01		LLD<1.48E-01		105.31	
FE-59	LLD<1.95E-01		LLD<1.95E-01		1099.25	
HF-181	LLD<8.93E-02		LLD<8.93E-02		482.20	
HG-203	LLD<5.82E-02		LLD<5.82E-02		279.20	
I-131	LLD<7.12E-02		LLD<7.12E-02		364.48	
I-132	LLD<1.19E-01		LLD<1.19E-01		667.69	
I-133	LLD<8.05E-02		LLD<8.05E-02		529.69	
I-134	LLD<1.17E-01		LLD<1.17E-01		847.03	
I-135	LLD<2.12E-01		LLD<2.12E-01		1260.41	
K-40	LLD<9.11E-01		LLD<9.11E-01		1460.75	
KR-85	LLD<1.52E+01		LLD<1.52E+01		513.99	
KR-85M	LLD<4.45E-02		LLD<4.45E-02		151.17	
KR-87	LLD<1.60E-01		LLD<1.60E-01		402.58	
KR-89	LLD<2.31E+00		LLD<2.31E+00		220.90	
LA-140	LLD<4.04E-02		LLD<4.04E-02		1596.20	

LA-142	LLD<1.67E-01	LLD<1.67E-01	641.83
MN-54	LLD<8.30E-02	LLD<8.30E-02	834.83
MN-56	LLD<9.88E-02	LLD<9.88E-02	846.76
NA-22	LLD<5.31E-02	LLD<5.31E-02	1274.55
NA-24	LLD<4.16E-02	LLD<4.16E-02	1368.60
NB-94	LLD<6.54E-02	LLD<6.54E-02	702.63
NB-95	LLD<7.66E-02	LLD<7.66E-02	765.78
NB-97	LLD<4.98E-01	LLD<4.98E-01	657.92
NP-237	LLD<3.38E-01	LLD<3.38E-01	86.50
NP-238	LLD<3.52E-01	LLD<3.52E-01	984.45
NP-239	LLD<3.34E-01	LLD<3.34E-01	277.60
PA-233	LLD<1.44E-01	LLD<1.44E-01	311.98
PA-234M	LLD<1.77E+01	LLD<1.77E+01	1001.03
PB-210	LLD<1.76E+00	LLD<1.76E+00	465.03
PB-212	LLD<1.16E-01	LLD<1.16E-01	239.00
PB-214	LLD<1.57E-01	LLD<1.57E-01	351.92
PO-210	LLD<6.49E+03	LLD<6.49E+03	804.00
PO-214	LLD<2.90E+03	LLD<2.90E+03	799.70
PO-216	LLD<5.13E+03	LLD<5.13E+03	804.90
PU-239	LLD<4.61E+02	LLD<4.61E+02	129.30
PU-241	LLD<1.64E+04	LLD<1.64E+04	148.57
RA-224	LLD<1.18E+00	LLD<1.18E+00	240.99
RA-226	LLD<1.16E+00	LLD<1.16E+00	186.10
RB-88	LLD<3.49E-01	LLD<3.49E-01	1836.00
RB-89	LLD<4.23E-01	LLD<4.23E-01	1031.88
RN-220	LLD<6.14E+01	LLD<6.14E+01	549.73
RU-103	LLD<7.55E-02	LLD<7.55E-02	497.08
RURH106	LLD<1.33E+00	LLD<1.33E+00	621.80
SB-124	LLD<2.01E-01	LLD<2.01E-01	602.72
SB-125	LLD<5.02E-01	LLD<5.02E-01	176.33
SC-46	LLD<1.09E-01	LLD<1.09E-01	1120.45
SE-75	LLD<8.02E-02	LLD<8.02E-02	264.66
SN-113	LLD<9.92E-02	LLD<9.92E-02	391.67
SR-85	LLD<6.68E-02	LLD<6.68E-02	513.99
SR-91	LLD<1.27E-01	LLD<1.27E-01	555.60
SR-92	LLD<4.51E-02	LLD<4.51E-02	1383.94
TA-182	LLD<2.88E-01	LLD<2.88E-01	1121.30
TC-99M	LLD<3.52E-02	LLD<3.52E-02	140.51
TE-123M	LLD<3.85E-02	LLD<3.85E-02	159.00
TE-125M	LLD<1.11E+01	LLD<1.11E+01	109.27
TE-132	LLD<5.25E-02	LLD<5.25E-02	228.16
TH-228	LLD<3.62E+00	LLD<3.62E+00	84.37
TL-208	LLD<8.96E-02	LLD<8.96E-02	583.14
U-235	LLD<6.46E-02	LLD<6.46E-02	185.71
U-237	LLD<2.08E-01	LLD<2.08E-01	208.00
W-187	LLD<2.25E-01	LLD<2.25E-01	685.74
XE-131M	LLD<1.74E+00	LLD<1.74E+00	163.98
XE-133	LLD<1.31E-01	LLD<1.31E-01	81.00
XE-133M	LLD<4.19E-01	LLD<4.19E-01	233.21
XE-135	LLD<4.85E-02	LLD<4.85E-02	249.79
XE-138	LLD<4.07E-01	LLD<4.07E-01	258.41
Y-88	LLD<3.29E-02	LLD<3.29E-02	1836.06
Y-91	LLD<2.31E+01	LLD<2.31E+01	1204.90
Y-91M	LLD<9.61E-02	LLD<9.61E-02	555.60
ZN-65	LLD<2.35E-01	LLD<2.35E-01	1115.55
ZR-95	LLD<1.30E-01	LLD<1.30E-01	756.73
ZR-97	LLD<7.43E-02	LLD<7.43E-02	743.33

TOTAL 6.60E+01 +-5.56E-01 6.60E+01 +-5.56E-01

STANDARD DEVIATION = 0.19

E BAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.45E-09 UC/LI
TOTAL MEASURED ACTIVITY = 6.60E+01 (+-5.56E-01) UC/LI
% TECH. SPEC. = ***** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
53.47	26.91	1104.	13.9	1.17E+03
1127.44	563.62	2278.	7.0	1.78E+01
1139.60	569.70	4332.	5.7	3.43E+01
1604.93	802.35	1991.	9.5	2.16E+01
2337.07	1168.52	398.	39.8	6.06E+00
2731.98	1366.10	547.	10.7	9.54E+00
2803.13	1401.70	251.	18.1	4.46E+00

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2922.97	1461.66	793.	7.8	1.46E+01

*
* G A M M A S P E C T R U M A N A L Y S I S *
*

CANBERRA SPECTRAN-F V2.06 SOFTWARE

222-S COUNTING ROOM WESTINGHOUSE HANFORD

17-OCT-90 16:19:46

A N A L Y S I S P A R A M E T E R S

MCA UNIT NUMBER: 2 / ADC UNIT NUMBER: 3.0
DETECTOR NUMBER: 3 / GEOMETRY NUMBER: 41
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD3211
ANALYZED BY: VR

SAMPLE DESCRIPTION: F1048 SEG/COMP#8
GEOMETRY DESCRIPTION:
SAMPLE SIZE: 1.0000E-03 LI / CONVERSION FACTOR: 1.0000E+00
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 27-FEB-90 AT 16:32:43

COLLECT LIVE TIME: 3000. SECONDS
REAL TIME: 3003. SECONDS
DEAD TIME: 0.10 %

DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 17-OCT-89
EFFICIENCY CALIBRATION PERFORMED 31-JUL-89

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	704.11	352.27	0.87	239.	100.	48.5	PB-214
1B		351.90			109.	28.2	
2	1166.36	583.22	1.07	103.	101.	36.1	EU-154,
2B		583.13			94.	24.1	TL-208
3	1218.50	609.28	1.46	107.	157.	25.4	BI-214,
3B		609.19			122.	21.0	RU-103
4	1323.33	661.66	1.61	96.	76.	45.1	CS-137
4B		661.41			81.	28.8	
5	2921.19	1460.70	1.82	29.	634.	8.3	K-40
5B		1460.58			611.	5.5	

ERROR QUOTATION AT 1.96 SIGMA
 PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0013
 BACKGROUND DESCRIPTION: BKG
 BACKGROUND COLLECT STARTED ON 15-JAN-90 AT 11:00:00
 BACKGROUND LIVE TIME: 7000. SECONDS

SAMPLE: F1048 SEG/COMP#8

DATA COLLECTED ON 27-FEB-90 AT 16:32:43

DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI			ENERGY COMPARISON	
	MEASURED	ERROR	DECAY CORRECTED	ERROR	(KEV)
				EXPECT	DIFF
AC-228	LLD<2.31E-01		LLD<2.31E-01		911.07
AG-108M	LLD<3.29E-02		LLD<3.29E-02		433.94
AG-110M	LLD<5.45E-02		LLD<5.45E-02		657.76
AM-241	LLD<5.17E-02		LLD<5.17E-02		59.54
AM-243	LLD<3.93E-02		LLD<3.93E-02		74.67
AR-41	LLD<7.15E-02		LLD<7.15E-02		1293.64
AU-198	LLD<3.04E-02		LLD<3.04E-02		411.80
BA-133	LLD<5.56E-02		LLD<5.56E-02		356.02
BA-139	LLD<1.45E-01		LLD<1.45E-01		165.85
BA-140	LLD<1.56E-01		LLD<1.56E-01		537.27
BA-141	LLD<1.48E-01		LLD<1.48E-01		190.23
BE-7	LLD<3.38E-01		LLD<3.38E-01		477.59
BI-207	LLD<3.86E-02		LLD<3.86E-02		569.70
BI-212	LLD<5.57E-01		LLD<5.57E-01		727.27
BI-214	LLD<1.21E-01		LLD<1.21E-01		609.32
CD-109	LLD<6.49E-01		LLD<6.49E-01		88.03
CE-139	LLD<3.29E-02		LLD<3.29E-02		165.85
CE-141	LLD<5.61E-02		LLD<5.61E-02		145.44
CEPR144	LLD<4.66E-01		LLD<4.66E-01		133.51
CO-56	LLD<3.94E-02		LLD<3.94E-02		846.76
CO-57	LLD<2.95E-02		LLD<2.95E-02		122.06
CO-58	LLD<4.50E-02		LLD<4.50E-02		810.75
CO-60	LLD<5.26E-02		LLD<5.26E-02		1332.50
CR-51	LLD<2.74E-01		LLD<2.74E-01		320.09
CS-134	LLD<5.20E-02		LLD<5.20E-02		795.84
CS-136	LLD<4.05E-02		LLD<4.05E-02		818.51
CS-137	LLD<6.23E-02		LLD<6.23E-02		661.65
CS-138	LLD<1.06E-01		LLD<1.06E-01		1435.86
EU-152	LLD<2.75E-01		LLD<2.75E-01		1408.01
EU-154	LLD<1.14E-01		LLD<1.14E-01		1274.45
EU-155	LLD<1.09E-01		LLD<1.09E-01		105.31
FE-59	LLD<8.81E-02		LLD<8.81E-02		1099.25
HF-181	LLD<4.37E-02		LLD<4.37E-02		482.20
HG-203	LLD<3.67E-02		LLD<3.67E-02		279.20
I-131	LLD<3.71E-02		LLD<3.71E-02		364.48
I-132	LLD<4.58E-02		LLD<4.58E-02		667.69
I-133	LLD<3.77E-02		LLD<3.77E-02		529.69
I-134	LLD<6.20E-02		LLD<6.20E-02		847.03
I-135	LLD<2.09E-01		LLD<2.09E-01		1260.41
K-40	LLD<1.44E+00		LLD<1.44E+00		1460.75
KR-85	LLD<9.76E+00		LLD<9.76E+00		513.99
KR-85M	LLD<4.28E-02		LLD<4.28E-02		151.17
KR-87	LLD<7.82E-02		LLD<7.82E-02		402.58
KR-89	LLD<1.47E+00		LLD<1.47E+00		220.90
LA-140	LLD<6.54E-02		LLD<6.54E-02		1596.20
LA-142	LLD<8.92E-02		LLD<8.92E-02		641.83
MN-54	LLD<4.73E-02		LLD<4.73E-02		834.83

MN-56	LLD<4.45E-02	LLD<4.45E-02	846.76
NA-22	LLD<4.68E-02	LLD<4.68E-02	1274.55
NA-24	LLD<5.04E-02	LLD<5.04E-02	1368.60
NB-94	LLD<4.08E-02	LLD<4.08E-02	702.63
NB-95	LLD<4.73E-02	LLD<4.73E-02	765.78
NB-97	LLD<6.61E-02	LLD<6.61E-02	657.92
NP-237	LLD<1.71E-01	LLD<1.71E-01	86.50
NP-238	LLD<1.54E-01	LLD<1.54E-01	984.45
NP-239	LLD<2.07E-01	LLD<2.07E-01	277.60
PA-233	LLD<8.05E-02	LLD<8.05E-02	311.98
PA-234M	LLD<7.50E+00	LLD<7.50E+00	1001.03
PB-210	LLD<8.49E-01	LLD<8.49E-01	465.03
PB-212	LLD<7.15E-02	LLD<7.15E-02	239.00
PB-214	LLD<1.16E-01	LLD<1.16E-01	351.92
PO-210	LLD<3.55E+03	LLD<3.55E+03	804.00
PO-214	LLD<4.28E+02	LLD<4.28E+02	799.70
PO-216	LLD<2.20E+03	LLD<2.20E+03	804.90
PU-239	LLD<4.09E+02	LLD<4.09E+02	129.30
PU-241	LLD<1.42E+04	LLD<1.42E+04	148.57
RA-224	LLD<7.93E-01	LLD<7.93E-01	240.99
RA-226	LLD<8.60E-01	LLD<8.60E-01	186.10
RB-88	LLD<3.51E-01	LLD<3.51E-01	1836.00
RB-89	LLD<2.06E-01	LLD<2.06E-01	1031.88
RN-220	LLD<3.43E+01	LLD<3.43E+01	549.73
RU-103	LLD<3.64E-02	LLD<3.64E-02	497.08
RURH106	LLD<7.30E-01	LLD<7.30E-01	621.80
SB-124	LLD<4.11E-02	LLD<4.11E-02	602.72
SB-125	LLD<4.14E-01	LLD<4.14E-01	176.33
SC-46	LLD<6.72E-02	LLD<6.72E-02	1120.45
SE-75	LLD<4.81E-02	LLD<4.81E-02	264.66
SN-113	LLD<4.88E-02	LLD<4.88E-02	391.67
SR-85	LLD<4.28E-02	LLD<4.28E-02	513.99
SR-91	LLD<6.82E-02	LLD<6.82E-02	555.60
SR-92	LLD<7.32E-02	LLD<7.32E-02	1383.94
TA-182	LLD<1.40E-01	LLD<1.40E-01	1121.30
TC-99M	LLD<3.07E-02	LLD<3.07E-02	140.51
TE-123M	LLD<3.21E-02	LLD<3.21E-02	159.00
TE-125M	LLD<8.45E+00	LLD<8.45E+00	109.27
TE-132	LLD<3.38E-02	LLD<3.38E-02	228.16
TH-228	LLD<1.70E+00	LLD<1.70E+00	84.37
TL-208	LLD<5.51E-02	LLD<5.51E-02	583.14
U-235	LLD<5.23E-02	LLD<5.23E-02	185.71
U-237	LLD<1.46E-01	LLD<1.46E-01	208.00
W-187	LLD<1.36E-01	LLD<1.36E-01	685.74
XE-131M	LLD<1.41E+00	LLD<1.41E+00	163.98
XE-133	LLD<5.46E-02	LLD<5.46E-02	81.00
XE-133M	LLD<2.99E-01	LLD<2.99E-01	233.21
XE-135	LLD<3.33E-02	LLD<3.33E-02	249.79
XE-138	LLD<2.50E-01	LLD<2.50E-01	258.41
Y-88	LLD<3.33E-02	LLD<3.33E-02	1836.06
Y-91	LLD<2.07E+01	LLD<2.07E+01	1204.90
Y-91M	LLD<5.16E-02	LLD<5.16E-02	555.60
ZN-65	LLD<1.56E-01	LLD<1.56E-01	1115.55
ZR-95	LLD<7.78E-02	LLD<7.78E-02	756.73
ZR-97	LLD<3.91E-02	LLD<3.91E-02	743.33
TOTAL	0.00E-01 +-0.00E-01	0.00E-01 +-0.00E-01	

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

ALL DETECTED PEAKS WERE USED IN THE ANALYSIS

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
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704.11	352.27	100.	48.5	2.42E+00
1166.36	583.22	101.	36.1	3.81E+00
1218.50	609.28	157.	25.4	6.17E+00
1323.33	661.66	76.	45.1	3.21E+00
2921.19	1460.70	634.	8.3	5.29E+01

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* G A M M A S P E C T R U M A N A L Y S I S * * * * *
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CANBERRA SPECTRAN-F V2.06 SOFTWARE

222-S COUNTING ROOM

17-OCT-90 17:40:50

A N A L Y S I S P A R A M E T E R S

MCA UNIT NUMBER: 2 / ADC UNIT NUMBER: 1.0
DETECTOR NUMBER: 1 / GEOMETRY NUMBER: 42
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD1963
ANALYZED BY: MAX

SAMPLE DESCRIPTION: F1049
GEOMETRY DESCRIPTION:
SAMPLE SIZE: 1.0000E-03 LI / CONVERSION FACTOR: 5.0000E-02
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 27-FEB-90 AT 14:32:45

COLLECT LIVE TIME: 3000. SECONDS
REAL TIME: 3002. SECONDS
DEAD TIME: 0.07 %

DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 23-NOV-89
EFFICIENCY CALIBRATION PERFORMED 2-MAR-89

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1C	92.72	46.26	1.01	97.	52.	58.7	PU-242, PU-240, EU-155
2C	95.97	47.88	1.01	147.	35.	65.5	U-234
3	1323.89	661.38	1.48	53.	4413.	3.0	CS-137
3B		661.82			35.	46.4	
4	2921.76	1460.69	2.15	16.	164.	17.2	K-40
4B		1461.77			182.	11.2	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY
B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0011
BACKGROUND DESCRIPTION: BK0011
BACKGROUND COLLECT STARTED ON 10-JAN-85 AT 12:00:00
BACKGROUND LIVE TIME: 6000. SECONDS

SAMPLE: F1049

DATA COLLECTED ON 27-FEB-90 AT 14:32:45

DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

RADIONUCLIDE ANALYSIS REPORT

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI			ENERGY COMPARISON	
	MEASURED	ERROR	DECAY CORRECTED	ERROR	(KEV) EXPECT
AC-228	LLD<2.17E+00		LLD<2.17E+00		911.07
AG-108M	LLD<9.99E-01		LLD<9.99E-01		433.94
AG-110M	LLD<6.22E+00		LLD<6.22E+00		657.76
AM-241	LLD<5.45E+00		LLD<5.45E+00		59.54
AM-243	LLD<1.54E+00		LLD<1.54E+00		74.67
AR-41	LLD<9.59E-01		LLD<9.59E-01		1293.64
AU-198	LLD<7.60E-01		LLD<7.60E-01		411.80
BA-133	LLD<1.39E+00		LLD<1.39E+00		356.02
BA-139	LLD<3.25E+00		LLD<3.25E+00		165.85
BA-140	LLD<3.14E+00		LLD<3.14E+00		537.27
BA-141	LLD<3.09E+00		LLD<3.09E+00		190.23
BE-7	LLD<9.28E+00		LLD<9.28E+00		477.59
BI-207	LLD<6.35E-01		LLD<6.35E-01		569.70
BI-212	LLD<1.09E+01		LLD<1.09E+01		727.27
BI-214	LLD<1.90E+00		LLD<1.90E+00		609.32
CD-109	LLD<2.17E+01		LLD<2.17E+01		88.03
CE-139	LLD<7.36E-01		LLD<7.36E-01		165.85
CE-141	LLD<1.15E+00		LLD<1.15E+00		145.44
CEPR144	LLD<9.21E+00		LLD<9.21E+00		133.51
CO-56	LLD<5.80E-01		LLD<5.80E-01		846.76
CO-57	LLD<6.27E-01		LLD<6.27E-01		122.06
CO-58	LLD<5.62E-01		LLD<5.62E-01		810.75
CO-60	LLD<6.05E-01		LLD<6.05E-01		1332.50
CR-51	LLD<6.93E+00		LLD<6.93E+00		320.09
CS-134	LLD<5.85E-01		LLD<5.85E-01		795.84
CS-136	LLD<6.30E-01		LLD<6.30E-01		818.51
CS-137	1.36E+02	+4.45E+00	1.36E+02	+4.45E+00	661.65 -0.27
CS-138	LLD<1.07E+00		LLD<1.07E+00		1435.86
EU-152	LLD<2.83E+00		LLD<2.83E+00		1408.01
EU-154	LLD<2.02E+00		LLD<2.02E+00		1274.45
EU-155	LLD<2.47E+00		LLD<2.47E+00		105.31
FE-59	LLD<1.18E+00		LLD<1.18E+00		1099.25
HF-181	LLD<1.00E+00		LLD<1.00E+00		482.20
HG-203	LLD<7.86E-01		LLD<7.86E-01		279.20
I-131	LLD<9.67E-01		LLD<9.67E-01		364.48
I-132	LLD<1.18E+00		LLD<1.18E+00		667.69
I-133	LLD<8.21E-01		LLD<8.21E-01		529.69
I-134	LLD<8.09E-01		LLD<8.09E-01		847.03
I-135	LLD<2.22E+00		LLD<2.22E+00		1260.41
K-40	LLD<1.91E+01		LLD<1.91E+01		1460.75
KR-85	LLD<2.29E+02		LLD<2.29E+02		513.99
KR-85M	LLD<7.05E-01		LLD<7.05E-01		151.17
KR-87	LLD<2.15E+00		LLD<2.15E+00		402.58
KR-89	LLD<3.38E+01		LLD<3.38E+01		220.90
LA-140	LLD<5.72E-01		LLD<5.72E-01		1596.20
LA-142	LLD<1.84E+00		LLD<1.84E+00		641.83
MN-54	LLD<5.14E-01		LLD<5.14E-01		834.83

MN-56	LLD<6.54E-01	LLD<6.54E-01	846.76
NA-22	LLD<7.05E-01	LLD<7.05E-01	1274.55
NA-24	LLD<4.90E-01	LLD<4.90E-01	1368.60
NB-94	LLD<5.64E-01	LLD<5.64E-01	702.63
NB-95	LLD<4.72E-01	LLD<4.72E-01	765.78
NB-97	LLD<7.54E+00	LLD<7.54E+00	657.92
NP-237	LLD<6.11E+00	LLD<6.11E+00	86.50
NP-238	LLD<1.87E+00	LLD<1.87E+00	984.45
NP-239	LLD<4.48E+00	LLD<4.48E+00	277.60
PA-233	LLD<1.99E+00	LLD<1.99E+00	311.98
PA-234M	LLD<1.40E+02	LLD<1.40E+02	1001.03
PB-210	LLD<2.36E+01	LLD<2.36E+01	465.03
PB-212	LLD<1.51E+00	LLD<1.51E+00	239.00
PB-214	LLD<2.24E+00	LLD<2.24E+00	351.92
PO-210	LLD<3.38E+04	LLD<3.38E+04	804.00
PO-214	LLD<6.69E+03	LLD<6.69E+03	799.70
PO-216	LLD<2.07E+04	LLD<2.07E+04	804.90
PU-239	LLD<8.12E+03	LLD<8.12E+03	129.30
PU-241	LLD<2.80E+05	LLD<2.80E+05	148.57
RA-224	LLD<1.71E+01	LLD<1.71E+01	240.99
RA-226	LLD<1.61E+01	LLD<1.61E+01	186.10
RB-88	LLD<3.96E+00	LLD<3.96E+00	1836.00
RB-89	LLD<2.78E+00	LLD<2.78E+00	1031.88
RN-220	LLD<6.47E+02	LLD<6.47E+02	549.73
RU-103	LLD<9.25E-01	LLD<9.25E-01	497.08
RURH106	LLD<1.51E+01	LLD<1.51E+01	621.80
SB-124	LLD<6.83E-01	LLD<6.83E-01	602.72
SB-125	LLD<8.19E+00	LLD<8.19E+00	176.33
SC-46	LLD<7.01E-01	LLD<7.01E-01	1120.45
SE-75	LLD<1.09E+00	LLD<1.09E+00	264.66
SN-113	LLD<1.18E+00	LLD<1.18E+00	391.67
SR-85	LLD<1.00E+00	LLD<1.00E+00	513.99
SR-91	LLD<1.25E+00	LLD<1.25E+00	555.60
SR-92	LLD<6.62E-01	LLD<6.62E-01	1383.94
TA-182	LLD<1.88E+00	LLD<1.88E+00	1121.30
TC-99M	LLD<6.03E-01	LLD<6.03E-01	140.51
TE-123M	LLD<6.72E-01	LLD<6.72E-01	159.00
TE-125M	LLD<1.93E+02	LLD<1.93E+02	109.27
TE-132	LLD<7.20E-01	LLD<7.20E-01	228.16
TH-228	LLD<7.13E+01	LLD<7.13E+01	84.37
TL-208	LLD<8.56E-01	LLD<8.56E-01	583.14
U-235	LLD<1.07E+00	LLD<1.07E+00	185.71
U-237	LLD<3.18E+00	LLD<3.18E+00	208.00
W-187	LLD<1.74E+00	LLD<1.74E+00	685.74
XE-131M	LLD<2.97E+01	LLD<2.97E+01	163.98
XE-133	LLD<2.46E+00	LLD<2.46E+00	81.00
XE-133M	LLD<6.67E+00	LLD<6.67E+00	233.21
XE-135	LLD<7.62E-01	LLD<7.62E-01	249.79
XE-138	LLD<5.58E+00	LLD<5.58E+00	258.41
Y-88	LLD<3.76E-01	LLD<3.76E-01	1836.06
Y-91	LLD<2.56E+02	LLD<2.56E+02	1204.90
Y-91M	LLD<9.42E-01	LLD<9.42E-01	555.60
ZN-65	LLD<1.85E+00	LLD<1.85E+00	1115.55
ZR-95	LLD<8.93E-01	LLD<8.93E-01	756.73
ZR-97	LLD<4.94E-01	LLD<4.94E-01	743.33

TOTAL 1.36E+02 +-4.45E+00 1.36E+02 +-4.45E+00

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.16E-08 UC/LI

TOTAL MEASURED ACTIVITY = 1.36E+02 (+-4.45E+00) UC/LI
% TECH. SPEC. = ***** (+****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
92.72	46.26	52.	58.7	7.86E+00
95.97	47.88	35.	65.5	4.55E+00

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.76	1460.69	164.	17.2	1.55E+01

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* G A M M A S P E C T R U M A N A L Y S I S * * * * * * * * * * * * * * *
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CANBERRA SPECTRAN-F V2.06 SOFTWARE

222-S COUNTING ROOM

17-OCT-90 14:47:58

A N A L Y S I S P A R A M E T E R S

MCA UNIT NUMBER: 1 / ADC UNIT NUMBER: 2.0
DETECTOR NUMBER: 2 / GEOMETRY NUMBER: 42
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED

LLD CALCULATION PERFORMED

MEASURED ENERGY DIFFERENCES LISTED

MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD2101

ANALYZED BY: MAX

SAMPLE DESCRIPTION: F1050

GEOMETRY DESCRIPTION:

SAMPLE SIZE: 1.0000E-03 LI / CONVERSION FACTOR: 5.0000E-02

STANDARD SIZE: 1.0000E+00 EA

ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 27-FEB-90 AT 14:34:27

COLLECT LIVE TIME: 3000. SECONDS

REAL TIME: 3001. SECONDS

DEAD TIME: 0.03 %

DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 17-MAR-89

EFFICIENCY CALIBRATION PERFORMED 21-OCT-88

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	1324.47	661.85	1.74	62.	2951.	3.7	CS-137
1B		661.85			36.	13.9	
2	2922.41	1460.75	2.26	14.	170.	16.8	K-40
2B		1460.85			156.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0012
BACKGROUND DESCRIPTION: BKG
BACKGROUND COLLECT STARTED ON 30-AUG-88 AT 16:46:00
BACKGROUND LIVE TIME: 60000. SECONDS

222-S COUNTING ROOM

17-OCT-90 14:47:58

SAMPLE: F1050

DATA COLLECTED ON 27-FEB-90 AT 14:34:27

DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI			ENERGY COMPARISON (KEV)	
	MEASURED	DECAY ERROR	CORRECTED	ERROR	EXPECT
AC-228	LLD<4.22E+00		LLD<4.22E+00		911.07
AG-108M	LLD<1.40E+00		LLD<1.40E+00		433.94
AG-110M	LLD<7.64E+00		LLD<7.64E+00		657.76
AM-241	LLD<7.92E+00		LLD<7.92E+00		59.54
AM-243	LLD<2.15E+00		LLD<2.15E+00		74.67
AR-41	LLD<1.20E+00		LLD<1.20E+00		1293.64
AU-198	LLD<1.06E+00		LLD<1.06E+00		411.80
BA-133	LLD<1.64E+00		LLD<1.64E+00		356.02
BA-139	LLD<3.76E+00		LLD<3.76E+00		165.85
BA-140	LLD<4.05E+00		LLD<4.05E+00		537.27
BA-141	LLD<3.59E+00		LLD<3.59E+00		190.23
BE-7	LLD<1.04E+01		LLD<1.04E+01		477.59
BI-207	LLD<9.58E-01		LLD<9.58E-01		569.70
BI-212	LLD<1.26E+01		LLD<1.26E+01		727.27
BI-214	LLD<2.31E+00		LLD<2.31E+00		609.32
CD-109	LLD<2.66E+01		LLD<2.66E+01		88.03
CE-139	LLD<8.50E-01		LLD<8.50E-01		165.85
CE-141	LLD<1.48E+00		LLD<1.48E+00		145.44
CEPR144	LLD<1.17E+01		LLD<1.17E+01		133.51
CO-56	LLD<8.42E-01		LLD<8.42E-01		846.76
CO-57	LLD<7.65E-01		LLD<7.65E-01		122.06
CO-58	LLD<9.34E-01		LLD<9.34E-01		810.75
CO-60	LLD<1.05E+00		LLD<1.05E+00		1332.50
CR-51	LLD<8.97E+00		LLD<8.97E+00		320.09
CS-134	LLD<9.35E-01		LLD<9.35E-01		795.84
CS-136	LLD<9.37E-01		LLD<9.37E-01		818.51
CS-137	1.26E+02	+-4.97E+00	1.26E+02	+-4.97E+00	661.65
CS-138	LLD<2.07E+00		LLD<2.07E+00		1435.86
EU-152	LLD<4.20E+00		LLD<4.20E+00		1408.01
EU-154	LLD<2.84E+00		LLD<2.84E+00		1274.45
EU-155	LLD<3.57E+00		LLD<3.57E+00		105.31
FE-59	LLD<1.42E+00		LLD<1.42E+00		1099.25
HF-181	LLD<1.34E+00		LLD<1.34E+00		482.20
HG-203	LLD<9.47E-01		LLD<9.47E-01		279.20
I-131	LLD<1.11E+00		LLD<1.11E+00		364.48
I-132	LLD<4.52E+00		LLD<4.52E+00		667.69
I-133	LLD<1.10E+00		LLD<1.10E+00		529.69
I-134	LLD<1.25E+00		LLD<1.25E+00		847.03
I-135	LLD<4.12E+00		LLD<4.12E+00		1260.41
K-40	LLD<2.10E+01		LLD<2.10E+01		1460.75
KR-85	LLD<2.90E+02		LLD<2.90E+02		513.99
KR-85M	LLD<8.87E-01		LLD<8.87E-01		151.17
KR-87	LLD<2.56E+00		LLD<2.56E+00		402.58
KR-89	LLD<4.08E+01		LLD<4.08E+01		220.90
LA-140	LLD<9.65E-01		LLD<9.65E-01		1596.20
LA-142	LLD<2.30E+00		LLD<2.30E+00		641.83
MN-54	LLD<8.55E-01		LLD<8.55E-01		834.83

MN-56	LLD<9.50E-01	LLD<9.50E-01	846.76
NA-22	LLD<1.01E+00	LLD<1.01E+00	1274.55
NA-24	LLD<1.24E+00	LLD<1.24E+00	1368.60
NB-94	LLD<9.48E-01	LLD<9.48E-01	702.63
NB-95	LLD<8.70E-01	LLD<8.70E-01	765.78
NB-97	LLD<8.65E+00	LLD<8.65E+00	657.92
NP-237	LLD<7.61E+00	LLD<7.61E+00	86.50
NP-238	LLD<3.24E+00	LLD<3.24E+00	984.45
NP-239	LLD<5.49E+00	LLD<5.49E+00	277.60
PA-233	LLD<2.17E+00	LLD<2.17E+00	311.98
PA-234M	LLD<1.69E+02	LLD<1.69E+02	1001.03
PB-210	LLD<3.12E+01	LLD<3.12E+01	465.03
PB-212	LLD<1.88E+00	LLD<1.88E+00	239.00
PB-214	LLD<2.61E+00	LLD<2.61E+00	351.92
PO-210	LLD<6.83E+04	LLD<6.83E+04	804.00
PO-214	LLD<9.01E+03	LLD<9.01E+03	799.70
PO-216	LLD<4.74E+04	LLD<4.74E+04	804.90
PU-239	LLD<1.09E+04	LLD<1.09E+04	129.30
PU-241	LLD<3.23E+05	LLD<3.23E+05	148.57
RA-224	LLD<1.97E+01	LLD<1.97E+01	240.99
RA-226	LLD<1.91E+01	LLD<1.91E+01	186.10
RB-88	LLD<8.48E+00	LLD<8.48E+00	1836.00
RB-89	LLD<4.04E+00	LLD<4.04E+00	1031.88
RN-220	LLD<8.39E+02	LLD<8.39E+02	549.73
RU-103	LLD<1.08E+00	LLD<1.08E+00	497.08
RURH106	LLD<1.67E+01	LLD<1.67E+01	621.80
SB-124	LLD<1.07E+00	LLD<1.07E+00	602.72
SB-125	LLD<1.02E+01	LLD<1.02E+01	176.33
SC-46	LLD<1.23E+00	LLD<1.23E+00	1120.45
SE-75	LLD<1.40E+00	LLD<1.40E+00	264.66
SN-113	LLD<1.47E+00	LLD<1.47E+00	391.67
SR-85	LLD<1.27E+00	LLD<1.27E+00	513.99
SR-91	LLD<1.74E+00	LLD<1.74E+00	555.60
SR-92	LLD<1.66E+00	LLD<1.66E+00	1383.94
TA-182	LLD<3.45E+00	LLD<3.45E+00	1121.30
TC-99M	LLD<7.71E-01	LLD<7.71E-01	140.51
TE-123M	LLD<7.82E-01	LLD<7.82E-01	159.00
TE-125M	LLD<2.55E+02	LLD<2.55E+02	109.27
TE-132	LLD<8.52E-01	LLD<8.52E-01	228.16
TH-228	LLD<8.79E+01	LLD<8.79E+01	84.37
TL-208	LLD<1.15E+00	LLD<1.15E+00	583.14
U-235	LLD<1.28E+00	LLD<1.28E+00	185.71
U-237	LLD<3.21E+00	LLD<3.21E+00	208.00
W-187	LLD<3.15E+00	LLD<3.15E+00	685.74
XE-131M	LLD<3.59E+01	LLD<3.59E+01	163.98
XE-133	LLD<3.12E+00	LLD<3.12E+00	81.00
XE-133M	LLD<7.43E+00	LLD<7.43E+00	233.21
XE-135	LLD<8.63E-01	LLD<8.63E-01	249.79
XE-138	LLD<6.69E+00	LLD<6.69E+00	258.41
Y-88	LLD<8.05E-01	LLD<8.05E-01	1836.06
Y-91	LLD<3.48E+02	LLD<3.48E+02	1204.90
Y-91M	LLD<1.32E+00	LLD<1.32E+00	555.60
ZN-65	LLD<2.59E+00	LLD<2.59E+00	1115.55
ZR-95	LLD<1.44E+00	LLD<1.44E+00	756.73
ZR-97	LLD<9.09E-01	LLD<9.09E-01	743.33

TOTAL 1.26E+02 +-4.97E+00 1.26E+02 +-4.97E+00

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.16E-08 UC/LI

TOTAL MEASURED ACTIVITY = 1.26E+02 (+-4.97E+00) UC/LI
% TECH. SPEC. = ***** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

ALL DETECTED PEAKS WERE USED IN THE ANALYSIS

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2922.41	1460.75	170.	16.8	2.23E+01

*
*
* G A M M A S P E C T R U M A N A L Y S I S *
*
* *

CANBERRA SPECTRAN-F V2.06 SOFTWARE

222-S COUNTING ROOM WESTINGHOUSE HANFORD

17-OCT-90 16:36:59

A N A L Y S I S P A R A M E T E R S

MCA UNIT NUMBER: 1 / ADC UNIT NUMBER: 1.0
DETECTOR NUMBER: 4 / GEOMETRY NUMBER: 41
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD4247
ANALYZED BY: VR

SAMPLE DESCRIPTION: F1057 SEG/COMP#17
GEOMETRY DESCRIPTION:
SAMPLE SIZE: 1.0000E-03 LI / CONVERSION FACTOR: 1.0000E+00
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 27-FEB-90 AT 16:34:02

COLLECT LIVE TIME: 3000. SECONDS
REAL TIME: 3054. SECONDS
DEAD TIME: 1.77 %

DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 26-DEC-89
EFFICIENCY CALIBRATION PERFORMED 1-SEP-89

P E A K A N A L Y S I S .

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	53.47	26.91	1.09	5366.	3131.	7.4	
1B		27.06			123.	34.3	
2C	1127.42	563.61	1.50	4160.	2279.	8.3	CS-134, EU-152
3C	1139.52	569.66	1.50	4043.	4158.	7.0	CS-134, BI-207
4	1210.41	605.10	1.61	3983.	26712.	1.4	CS-134
5	1324.33	662.05	1.67	3123.	284092.	0.4	CS-137
5B		661.35			379.	12.7	
6?	1592.75	796.26	1.73	1582.	19959.	2.0	CS-134
7?	1605.00	802.38	1.73	1445.	1893.	11.4	CS-134
8?	2336.85	1168.41	2.08	1025.	309.	38.6	CS-134
9?	2347.66	1173.82	2.08	851.	25773.	1.4	CO-60
10	2666.40	1333.28	2.40	277.	23220.	1.3	CO-60
11	2731.78	1366.00	2.49	135.	464.	12.3	CS-134
12	2801.96	1401.11	2.61	101.	219.	20.2	BI-214
13	2923.22	1461.79	2.56	96.	780.	8.2	K-40
13B		1460.80			854.	7.1	

ERROR QUOTATION AT 1.96 SIGMA
 PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY
 ? - MULTIPLET ANALYSIS CONVERGED BUT GFIT > 4
 B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0014
 BACKGROUND DESCRIPTION: BKG
 BACKGROUND COLLECT STARTED ON 8-SEP-89 AT 12:00:00
 BACKGROUND LIVE TIME: 3000. SECONDS

222-S COUNTING ROOM WESTINGHOUSE HANFORD

17-OCT-90 16:36:59

SAMPLE: F1057 SEG/COMP#17

DATA COLLECTED ON 27-FEB-90 AT 16:34:02

DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

RADIONUCLIDE ANALYSIS REPORT

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI			ENERGY COMPARISON (KEV)	
	MEASURED	ERROR	DECAY CORRECTED	ERROR	EXPECT
AC-228	LLD<1.79E-01		LLD<1.79E-01		911.07
AG-108M	LLD<6.27E-02		LLD<6.27E-02		433.94
AG-110M	LLD<3.71E-01		LLD<3.71E-01		657.76
AM-241	LLD<2.72E-01		LLD<2.72E-01		59.54
AM-243	LLD<6.49E-02		LLD<6.49E-02		74.67
AR-41	LLD<3.06E-02		LLD<3.06E-02		1293.64
AU-198	LLD<6.01E-02		LLD<6.01E-02		411.80
BA-133	LLD<7.22E-02		LLD<7.22E-02		356.02
BA-139	LLD<1.47E-01		LLD<1.47E-01		165.85
BA-140	LLD<1.98E-01		LLD<1.98E-01		537.27
BA-141	LLD<1.49E-01		LLD<1.49E-01		190.23
BE-7	LLD<6.17E-01		LLD<6.17E-01		477.59
BI-207	LLD<4.58E-02		LLD<4.58E-02		569.70
BI-212	LLD<5.09E-01		LLD<5.09E-01		727.27
BI-214	LLD<2.75E-01		LLD<2.75E-01		609.32
CD-109	LLD<8.97E-01		LLD<8.97E-01		88.03
CE-139	LLD<3.32E-02		LLD<3.32E-02		165.85
CE-141	LLD<4.92E-02		LLD<4.92E-02		145.44
CEPR144	LLD<4.15E-01		LLD<4.15E-01		133.51
CO-56	LLD<4.28E-02		LLD<4.28E-02		846.76
CO-57	LLD<2.70E-02		LLD<2.70E-02		122.06
CO-58	LLD<3.84E-02		LLD<3.84E-02		810.75
CO-60	1.07E+01	+1.59E-01	1.07E+01	+1.59E-01	1332.50 0.78
					1173.24 0.58
CR-51	LLD<4.06E-01		LLD<4.06E-01		320.09
CS-134	6.80E+00	+1.44E-01	6.80E+00	+1.44E-01	795.84 0.41
					604.70 0.40
CS-136	LLD<3.78E-02		LLD<3.78E-02		818.51
CS-137	8.19E+01	+6.90E-01	8.19E+01	+6.90E-01	661.65 0.40
CS-138	LLD<3.33E-02		LLD<3.33E-02		1435.86
EU-152	LLD<1.20E-01		LLD<1.20E-01		1408.01
EU-154	LLD<8.21E-02		LLD<8.21E-02		1274.45
EU-155	LLD<1.16E-01		LLD<1.16E-01		105.31
FE-59	LLD<9.37E-02		LLD<9.37E-02		1099.25
HF-181	LLD<7.45E-02		LLD<7.45E-02		482.20
HG-203	LLD<4.57E-02		LLD<4.57E-02		279.20
I-131	LLD<5.64E-02		LLD<5.64E-02		364.48
I-132	LLD<1.15E-01		LLD<1.15E-01		667.69
I-133	LLD<5.77E-02		LLD<5.77E-02		529.69
I-134	LLD<5.73E-02		LLD<5.73E-02		847.03
I-135	LLD<1.06E-01		LLD<1.06E-01		1260.41
K-40	LLD<4.51E-01		LLD<4.51E-01		1460.75
KR-85	LLD<1.13E+01		LLD<1.13E+01		513.99
KR-85M	LLD<3.43E-02		LLD<3.43E-02		151.17
KR-87	LLD<1.28E-01		LLD<1.28E-01		402.58
KR-89	LLD<1.77E+00		LLD<1.77E+00		220.90
LA-140	LLD<2.02E-02		LLD<2.02E-02		1596.20

LA-142	LLD<1.13E-01	LLD<1.13E-01	641.83
MN-54	LLD<4.18E-02	LLD<4.18E-02	834.83
MN-56	LLD<4.84E-02	LLD<4.84E-02	846.76
NA-22	LLD<2.72E-02	LLD<2.72E-02	1274.55
NA-24	LLD<2.40E-02	LLD<2.40E-02	1368.60
NB-94	LLD<3.40E-02	LLD<3.40E-02	702.63
NB-95	LLD<3.70E-02	LLD<3.70E-02	765.78
NB-97	LLD<5.77E-01	LLD<5.77E-01	657.92
NP-237	LLD<2.66E-01	LLD<2.66E-01	86.50
NP-238	LLD<1.72E-01	LLD<1.72E-01	984.45
NP-239	LLD<2.63E-01	LLD<2.63E-01	277.60
PA-233	LLD<1.11E-01	LLD<1.11E-01	311.98
PA-234M	LLD<8.79E+00	LLD<8.79E+00	1001.03
PB-210	LLD<1.56E+00	LLD<1.56E+00	465.03
PB-212	LLD<8.74E-02	LLD<8.74E-02	239.00
PB-214	LLD<1.23E-01	LLD<1.23E-01	351.92
PO-210	LLD<3.04E+03	LLD<3.04E+03	804.00
PO-214	LLD<1.43E+03	LLD<1.43E+03	799.70
PO-216	LLD<2.48E+03	LLD<2.48E+03	804.90
PU-239	LLD<3.59E+02	LLD<3.59E+02	129.30
PU-241	LLD<1.28E+04	LLD<1.28E+04	148.57
RA-224	LLD<9.02E-01	LLD<9.02E-01	240.99
RA-226	LLD<9.21E-01	LLD<9.21E-01	186.10
RB-88	LLD<2.01E-01	LLD<2.01E-01	1836.00
RB-89	LLD<2.14E-01	LLD<2.14E-01	1031.88
RN-220	LLD<4.19E+01	LLD<4.19E+01	549.73
RU-103	LLD<5.93E-02	LLD<5.93E-02	497.08
RURH106	LLD<8.72E-01	LLD<8.72E-01	621.80
SB-124	LLD<1.02E-01	LLD<1.02E-01	602.72
SB-125	LLD<3.89E-01	LLD<3.89E-01	176.33
SC-46	LLD<5.45E-02	LLD<5.45E-02	1120.45
SE-75	LLD<6.25E-02	LLD<6.25E-02	264.66
SN-113	LLD<7.81E-02	LLD<7.81E-02	391.67
SR-85	LLD<4.94E-02	LLD<4.94E-02	513.99
SR-91	LLD<8.41E-02	LLD<8.41E-02	555.60
SR-92	LLD<2.35E-02	LLD<2.35E-02	1383.94
TA-182	LLD<1.45E-01	LLD<1.45E-01	1121.30
TC-99M	LLD<2.75E-02	LLD<2.75E-02	140.51
TE-123M	LLD<3.04E-02	LLD<3.04E-02	159.00
TE-125M	LLD<8.53E+00	LLD<8.53E+00	109.27
TE-132	LLD<4.02E-02	LLD<4.02E-02	228.16
TH-228	LLD<2.76E+00	LLD<2.76E+00	84.37
TL-208	LLD<5.54E-02	LLD<5.54E-02	583.14
U-235	LLD<5.15E-02	LLD<5.15E-02	185.71
U-237	LLD<1.64E-01	LLD<1.64E-01	208.00
W-187	LLD<1.11E-01	LLD<1.11E-01	685.74
XE-131M	LLD<1.37E+00	LLD<1.37E+00	163.98
XE-133	LLD<1.01E-01	LLD<1.01E-01	81.00
XE-133M	LLD<3.27E-01	LLD<3.27E-01	233.21
XE-135	LLD<3.79E-02	LLD<3.79E-02	249.79
XE-138	LLD<3.14E-01	LLD<3.14E-01	258.41
Y-88	LLD<1.89E-02	LLD<1.89E-02	1836.06
Y-91	LLD<1.17E+01	LLD<1.17E+01	1204.90
Y-91M	LLD<6.39E-02	LLD<6.39E-02	555.60
ZN-65	LLD<1.14E-01	LLD<1.14E-01	1115.55
ZR-95	LLD<6.40E-02	LLD<6.40E-02	756.73
ZR-97	LLD<3.65E-02	LLD<3.65E-02	743.33
TOTAL	9.94E+01 + -7.22E-01	9.94E+01 + -7.22E-01	

STANDARD DEVIATION = 0.17

E BAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 3.55E-09 UC/LI
TOTAL MEASURED ACTIVITY = 9.94E+01 (+-7.22E-01) UC/LI
% TECH. SPEC. = ***** (+*****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
53.47	26.91	3008.	7.8	3.19E+03
1127.42	563.61	2279.	8.3	1.79E+01
1139.52	569.66	4158.	7.0	3.29E+01
1605.00	802.38	1893.	11.4	2.06E+01
2336.85	1168.41	309.	38.6	4.71E+00
2731.78	1366.00	464.	12.3	8.09E+00
2801.96	1401.11	219.	20.2	3.89E+00

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2923.22	1461.79	780.	8.2	1.44E+01

*
*
* G A M M A S P E C T R U M A N A L Y S I S *
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* *

CANBERRA SPECTRAN-F V2.06 SOFTWARE

222-S COUNTING ROOM

17-OCT-90 13:44:38

A N A L Y S I S P A R A M E T E R S

MCA UNIT NUMBER: 1 / ADC UNIT NUMBER: 2.0
DETECTOR NUMBER: 2 / GEOMETRY NUMBER: 42
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED

LLD CALCULATION PERFORMED

MEASURED ENERGY DIFFERENCES LISTED

MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD2102

ANALYZED BY: VR

SAMPLE DESCRIPTION: F1058 SEG/COMP#18

GEOMETRY DESCRIPTION:

SAMPLE SIZE: 1.0000E-03 LI / CONVERSION FACTOR: 5.0000E-01

STANDARD SIZE: 1.0000E+00 EA

ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 27-FEB-90 AT 16:31:29

COLLECT LIVE TIME: 3000. SECONDS

REAL TIME: 3004. SECONDS

DEAD TIME: 0.13 %

DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 17-MAR-89

EFFICIENCY CALIBRATION PERFORMED 21-OCT-88

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1C	1127.78	563.52	1.56	437.	383.	19.4	CS-134, EU-152
2C	1139.82	569.54	1.56	451.	701.	15.1	CS-134, BI-207
3	1210.60	604.92	1.51	424.	4109.	3.4	CS-134
4	1324.42	661.82	1.72	323.	7322.	2.4	CS-137
4B		661.85			36.	13.9	
5C	1592.72	795.95	1.67	247.	2924.	4.7	CS-134
6C	1604.93	802.06	1.67	214.	317.	15.2	CS-134
7	2347.22	1173.16	1.96	216.	3649.	3.5	CO-60
8	2665.64	1332.37	2.21	40.	3317.	3.5	CO-60
8B		1332.24			9.	37.4	
9	2922.32	1460.70	1.57	12.	157.	17.3	K-40
9B		1460.85			156.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
 PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY

B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0012
 BACKGROUND DESCRIPTION: BKG
 BACKGROUND COLLECT STARTED ON 30-AUG-88 AT 16:46:00
 BACKGROUND LIVE TIME: 60000. SECONDS

222-S COUNTING ROOM

17-OCT-90 13:44:38

SAMPLE: F1058 SEG/COMP#18

DATA COLLECTED ON 27-FEB-90 AT 16:31:29

DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI			ENERGY COMPARISON (KEV)		
	MEASURED	ERROR	DECAY CORRECTED	ERROR	EXPECT	DIFF
AC-228	LLD<1.15E+00		LLD<1.15E+00		911.07	
AG-108M	LLD<2.54E-01		LLD<2.54E-01		433.94	
AG-110M	LLD<1.23E+00		LLD<1.23E+00		657.76	
AM-241	LLD<1.22E+00		LLD<1.22E+00		59.54	
AM-243	LLD<3.21E-01		LLD<3.21E-01		74.67	
AR-41	LLD<1.42E-01		LLD<1.42E-01		1293.64	
AU-198	LLD<2.32E-01		LLD<2.32E-01		411.80	
BA-133	LLD<3.05E-01		LLD<3.05E-01		356.02	
BA-139	LLD<6.35E-01		LLD<6.35E-01		165.85	
BA-140	LLD<9.24E-01		LLD<9.24E-01		537.27	
BA-141	LLD<6.12E-01		LLD<6.12E-01		190.23	
BE-7	LLD<2.11E+00		LLD<2.11E+00		477.59	
BI-207	LLD<2.31E-01		LLD<2.31E-01		569.70	
BI-212	LLD<3.63E+00		LLD<3.63E+00		727.27	
BI-214	LLD<1.75E+00		LLD<1.75E+00		609.32	
CD-109	LLD<3.99E+00		LLD<3.99E+00		88.03	
CE-139	LLD<1.44E-01		LLD<1.44E-01		165.85	
CE-141	LLD<2.40E-01		LLD<2.40E-01		145.44	
CEPR144	LLD<1.88E+00		LLD<1.88E+00		133.51	
CO-56	LLD<2.71E-01		LLD<2.71E-01		846.76	
CO-57	LLD<1.21E-01		LLD<1.21E-01		122.06	
CO-58	LLD<2.38E-01		LLD<2.38E-01		810.75	
CO-60	2.17E+01	+ -8.00E-01	2.17E+01	+ -8.00E-01	1332.50	-0.14
					1173.24	-0.07
CR-51	LLD<1.74E+00		LLD<1.74E+00		320.09	
CS-134	1.47E+01	+ -7.06E-01	1.47E+01	+ -7.06E-01	795.84	0.11
					604.70	0.22
CS-136	LLD<2.63E-01		LLD<2.63E-01		818.51	
CS-137	3.15E+01	+ -8.55E-01	3.15E+01	+ -8.55E-01	661.65	0.17
CS-138	LLD<2.63E-01		LLD<2.63E-01		1435.86	
EU-152	LLD<6.78E-01		LLD<6.78E-01		1408.01	
EU-154	LLD<4.23E-01		LLD<4.23E-01		1274.45	
EU-155	LLD<5.54E-01		LLD<5.54E-01		105.31	
FE-59	LLD<5.85E-01		LLD<5.85E-01		1099.25	
HF-181	LLD<2.73E-01		LLD<2.73E-01		482.20	
HG-203	LLD<1.88E-01		LLD<1.88E-01		279.20	
I-131	LLD<2.43E-01		LLD<2.43E-01		364.48	
I-132	LLD<7.17E-01		LLD<7.17E-01		667.69	
I-133	LLD<2.43E-01		LLD<2.43E-01		529.69	
I-134	LLD<3.89E-01		LLD<3.89E-01		847.03	
I-135	LLD<5.49E-01		LLD<5.49E-01		1260.41	
K-40	LLD<2.07E+00		LLD<2.07E+00		1460.75	
KR-85	LLD<5.29E+01		LLD<5.29E+01		513.99	
KR-85M	LLD<1.54E-01		LLD<1.54E-01		151.17	
KR-87	LLD<5.30E-01		LLD<5.30E-01		402.58	
KR-89	LLD<7.89E+00		LLD<7.89E+00		220.90	
LA-140	LLD<1.25E-01		LLD<1.25E-01		1596.20	

LA-142	LLD<5.51E-01	LLD<5.51E-01	641.83
MN-54	LLD<2.36E-01	LLD<2.36E-01	834.83
MN-56	LLD<3.05E-01	LLD<3.05E-01	846.76
NA-22	LLD<1.50E-01	LLD<1.50E-01	1274.55
NA-24	LLD<1.83E-01	LLD<1.83E-01	1368.60
NB-94	LLD<2.09E-01	LLD<2.09E-01	702.63
NB-95	LLD<2.24E-01	LLD<2.24E-01	765.78
NB-97	LLD<1.39E+00	LLD<1.39E+00	657.92
NP-237	LLD<1.13E+00	LLD<1.13E+00	86.50
NP-238	LLD<1.06E+00	LLD<1.06E+00	984.45
NP-239	LLD<1.19E+00	LLD<1.19E+00	277.60
PA-233	LLD<4.34E-01	LLD<4.34E-01	311.98
PA-234M	LLD<5.08E+01	LLD<5.08E+01	1001.03
PB-210	LLD<5.52E+00	LLD<5.52E+00	465.03
PB-212	LLD<3.50E-01	LLD<3.50E-01	239.00
PB-214	LLD<4.97E-01	LLD<4.97E-01	351.92
PO-210	LLD<2.20E+04	LLD<2.20E+04	804.00
PO-214	LLD<8.15E+03	LLD<8.15E+03	799.70
PO-216	LLD<1.50E+04	LLD<1.50E+04	804.90
PU-239	LLD<1.79E+03	LLD<1.79E+03	129.30
PU-241	LLD<5.64E+04	LLD<5.64E+04	148.57
RA-224	LLD<3.77E+00	LLD<3.77E+00	240.99
RA-226	LLD<3.32E+00	LLD<3.32E+00	186.10
RB-88	LLD<8.48E-01	LLD<8.48E-01	1836.00
RB-89	LLD<1.29E+00	LLD<1.29E+00	1031.88
RN-220	LLD<2.05E+02	LLD<2.05E+02	549.73
RU-103	LLD<2.33E-01	LLD<2.33E-01	497.08
RURH106	LLD<4.56E+00	LLD<4.56E+00	621.80
SB-124	LLD<4.77E-01	LLD<4.77E-01	602.72
SB-125	LLD<1.82E+00	LLD<1.82E+00	176.33
SC-46	LLD<3.20E-01	LLD<3.20E-01	1120.45
SE-75	LLD<2.66E-01	LLD<2.66E-01	264.66
SN-113	LLD<3.20E-01	LLD<3.20E-01	391.67
SR-85	LLD<2.32E-01	LLD<2.32E-01	513.99
SR-91	LLD<4.08E-01	LLD<4.08E-01	555.60
SR-92	LLD<1.40E-01	LLD<1.40E-01	1383.94
TA-182	LLD<8.97E-01	LLD<8.97E-01	1121.30
TC-99M	LLD<1.24E-01	LLD<1.24E-01	140.51
TE-123M	LLD<1.39E-01	LLD<1.39E-01	159.00
TE-125M	LLD<3.95E+01	LLD<3.95E+01	109.27
TE-132	LLD<1.61E-01	LLD<1.61E-01	228.16
TH-228	LLD<1.31E+01	LLD<1.31E+01	84.37
TL-208	LLD<2.73E-01	LLD<2.73E-01	583.14
U-235	LLD<2.23E-01	LLD<2.23E-01	185.71
U-237	LLD<6.62E-01	LLD<6.62E-01	208.00
W-187	LLD<8.29E-01	LLD<8.29E-01	685.74
XE-131M	LLD<6.15E+00	LLD<6.15E+00	163.98
XE-133	LLD<4.48E-01	LLD<4.48E-01	81.00
XE-133M	LLD<1.46E+00	LLD<1.46E+00	233.21
XE-135	LLD<1.70E-01	LLD<1.70E-01	249.79
XE-138	LLD<1.25E+00	LLD<1.25E+00	258.41
Y-88	LLD<8.05E-02	LLD<8.05E-02	1836.06
Y-91	LLD<7.12E+01	LLD<7.12E+01	1204.90
Y-91M	LLD<3.09E-01	LLD<3.09E-01	555.60
ZN-65	LLD<6.68E-01	LLD<6.68E-01	1115.55
ZR-95	LLD<4.12E-01	LLD<4.12E-01	756.73
ZR-97	LLD<2.65E-01	LLD<2.65E-01	743.33
TOTAL	6.79E+01 +-1.37E+00	6.79E+01 +-1.37E+00	

STANDARD DEVIATION = 0.16

E BAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.47E-09 UC/LI
TOTAL MEASURED ACTIVITY = 6.79E+01 (+-1.37E+00) UC/LI
% TECH. SPEC. = ***** (+-*****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
1127.78	563.52	383.	19.4	2.26E+01
1139.82	569.54	701.	15.1	4.17E+01
1604.93	802.06	317.	15.2	2.54E+01

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2922.32	1460.70	157.	17.3	2.06E+01

Single Shell Tank Calibration Record

ANALYTE:	Isotope Mixed Gamma		
PROCEDURE:	LQ-508-003	REVISION:	A-0
INSTRUMENT:	GEA Detector #1	PROPERTY NUMBER:	401934
TECHNOLOGIST:	J. L. Anderson	PAYROLL NUMBER:	61413
DATE:	See Attached Sheets		
CALIBRATION STANDARD ID: 56B40 D1			
ANALYTE CONCENTRATION: N/A			
TYPE OF CALIBRATION: Gamma Energy Analysis (Efficiency)			

DETECTOR: 1
 GEOMETRY CODE: 42
 GEOMETRY DESCRIPTION: 22 ML LIQUID, POS 2
 CALIBRATION DATE: 14-Feb-89
 ANALYST(S): J. L. ANDERSON/M. R. DOWELL
 STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	5.721347E-03
88.032	1.512568E-02
122.0614	2.041950E-02
165.853	1.456472E-02
279.1967	
391.668	1.042777E-02
513.99	7.856059E-03
661.65	6.838966E-03
898.021	5.300244E-03
1173.237	4.210416E-03
1332.501	3.785537E-03
1836.129	2.931033E-03

EQUATION 0-165 KEV

$$\begin{aligned}
 \text{LOG(EFF)} = & -5.343694\text{E+01} \\
 & + 2.034704\text{E+01} * \text{LOG(ENERGY)} \\
 & + -2.000264\text{E+00} * \text{LOG(ENERGY)}^2
 \end{aligned}$$

EQUATION 165-1836 KEV

$$\begin{aligned}
 \text{LOG(EFF)} = & 8.372735\text{E+00} \\
 & + -7.762489\text{E+00} * \text{LOG(ENERGY)} \\
 & + 2.017698\text{E+00} * \text{LOG(ENERGY)}^2 \\
 & + -2.447560\text{E-01} * \text{LOG(ENERGY)}^3 \\
 & + 1.067720\text{E-02} * \text{LOG(ENERGY)}^4
 \end{aligned}$$

GEA CALIBRATION RECORD

PROCEDURE LQ-508-003

DETECTOR: 1
 GEOMETRY CODE: 43
 GEOMETRY DESCRIPTION: 22 ML LIQUID, POS 3
 CALIBRATION DATE: 16-Feb-89
 ANALYST(S): J. L. ANDERSON/M. R. DOWELL
 STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	1.397695E-03
88.032	3.641448E-03
122.0614	5.035820E-03
165.853	4.620516E-03
279.1967	
391.668	2.619018E-03
513.99	1.890740E-03
661.65	1.782478E-02
898.021	1.392563E-03
1173.237	1.117189E-03
1332.501	1.007670E-03
1836.129	7.782502E-04

EQUATION 0-165 KEV

$$\text{LOG(EFF)} = -5.354869\text{E+01}$$

+ 1.975356E+01 *LOG(ENERGY)
+ -2.020050E+00 *LOG(ENERGY)^2

EQUATION 165-1836 KEV

LOG(EFF) = 4.001880E+01
+ -2.057555E+01 *LOG(ENERGY)
+ 6.748440E+00 *LOG(ENERGY)^2
+ 7.173093E-01 *LOG(ENERGY)^3
+ 2.821700E-02 *LOG(ENERGY)^4

CEA CALIBRATION RECORD

PROCEDURE LQ-508-003

Single Shell Tank Calibration Record

ANALYTE: Mixed Isotope Standards

PROCEDURE: LQ-508-003

REVISION: A-0

INSTRUMENT: GEA Detector #2

PROPERTY NUMBER: 401934

TECHNOLOGIST: J. L. Anderson

PAYROLL NUMBER: 61413

DATE: See Attached Sheets

CALIBRATION STANDARD ID: 56B40 D1

ANALYTE CONCENTRATION: N/A

TYPE OF CALIBRATION: Gamma Energy Analysis (Efficiency)

DETECTOR: 2
 GEOMETRY CODE: 42
 GEOMETRY DESCRIPTION: 22 ML LIQUID, POS 2
 CALIBRATION DATE: 21-Oct-88
 ANALYST(S): J. L. ANDERSON/M. R. DOWELL
 STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	3.417000E-03
88.032	1.090000E-02
122.0614	1.408000E-02
165.053	1.516000E-02
279.1967	9.929000E-03
391.668	7.578000E-03
513.99	5.875000E-03
661.65	4.927000E-03
898.021	3.727000E-03
1173.237	3.085000E-03
1332.501	2.683000E-03
1836.129	2.102000E-03

EQUATION 0-122 KEV

$$\begin{aligned} \text{LOG(EFF)} = & -6.654070\text{E+01} \\ & + 2.583780\text{E+01} * \text{LOG(ENERGY)} \\ & + -2.677550\text{E+00} * \text{LOG(ENERGY)}^2 \end{aligned}$$

EQUATION 122-1836 KEV

$$\begin{aligned} \text{LOG(EFF)} = & -1.050740\text{E+02} \\ & + 6.428950\text{E+01} * \text{LOG(ENERGY)} \\ & + -1.503170\text{E+01} * \text{LOG(ENERGY)}^2 \\ & + 1.533670\text{E+00} * \text{LOG(ENERGY)}^3 \\ & + -5.838530\text{E-02} * \text{LOG(ENERGY)}^4 \end{aligned}$$

GEA CALIBRATION RECORD

PROCEDURE LQ-508-003

DETECTOR: 2
 GEOMETRY CODE: 43
 GEOMETRY DESCRIPTION: 22 ML LIQUID, POS 3
 CALIBRATION DATE: 28-Sep-88
 ANALYST(S): J. L. ANDERSON/M. R. DOWELL
 STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	1.476000E-03
88.032	4.721000E-03
122.0614	6.509000E-03
165.053	6.613000E-03
279.1967	4.692000E-03
391.668	3.542000E-03
513.99	2.810000E-03
661.65	2.327000E-03
898.021	1.790000E-03
1173.237	1.437000E-03
1332.501	1.277000E-03
1836.129	9.824000E-04

EQUATION 0-165 KEV

LOG(EFF) = -5.826830E+01
+ 2.165450E+01 *LOG(ENERGY)
+ -2.198930E+00 *LOG(ENERGY)*2

EQUATION 165-1836 KEV

LOG(EFF) = -2.233890E+01
+ 1.174520E+01 *LOG(ENERGY)
+ -2.739550E+00 *LOG(ENERGY)*2
+ 2.655450E-01 *LOG(ENERGY)*3
+ -9.668420E-03 *LOG(ENERGY)*4

Single Shell Tank Calibration Record

ANALYTE: Mixed Isotope Standards

PROCEDURE: LQ-508-003

REVISION: A-3

INSTRUMENT: GEA Detector #3

PROPERTY NUMBER: 401934

TECHNOLOGIST: J. L. Anderson

PAYROLL NUMBER: 61413

DATE: July 2, 1989

CALIBRATION STANDARD ID: 56B40 D1

ANALYTE CONCENTRATION: N/A

TYPE OF CALIBRATION: Gamma Energy Analysis (Efficiency)

DETECTOR: 3
 GEOMETRY CODE: 41
 GEOMETRY DESCRIPTION: 22 ML LIQUID, POS 1
 CALIBRATION DATE: 2-JUL-89
 ANALYST(S): J. L. ANDERSON/M. R. DOWELL
 STANDARD ID: 56840 D1

ENERGY (KEV) EFFICIENCY (COUNTS/GAMMA)

59.536	2.833765E-02
88.032	2.881764E-02
122.0614	2.756557E-02
165.853	2.270614E-02
279.1967	
391.668	1.285730E-02
513.99	
661.65	7.841011E-03
898.021	5.779292E-03
1173.237	4.773005E-03
1332.501	4.278530E-03
1836.129	3.371238E-03

EQUATION 0-165 KEV

$$\begin{aligned}
 \text{LOG(EFF)} = & -1.113845E+01 \\
 & + 3.484260E+00 * \text{LOG(ENERGY)} \\
 & + -3.990659E-01 * \text{LOG(ENERGY)}^2
 \end{aligned}$$

EQUATION 165-1836 KEV

$$\begin{aligned}
 \text{LOG(EFF)} = & -2.052334E+01 \\
 & + 9.121738E+00 * \text{LOG(ENERGY)} \\
 & + -1.553578E+00 * \text{LOG(ENERGY)}^2 \\
 & + 8.018036E-02 * \text{LOG(ENERGY)}^3
 \end{aligned}$$

GEA CALIBRATION RECORD

PROCEDURE LA-508-003

DETECTOR: 3
 GEOMETRY CODE: 42
 GEOMETRY DESCRIPTION: 22 ML LIQUID, POS 2
 CALIBRATION DATE: 2-JUL-89
 ANALYST(S): J. L. ANDERSON/M. R. DOWELL
 STANDARD ID: 56840 D1

ENERGY (KEV) EFFICIENCY (COUNTS/GAMMA)

59.536	7.455306E-03
88.032	7.462748E-03
122.0614	7.578302E-03
165.853	6.965814E-03
279.1967	
391.668	3.596591E-03
513.99	
661.65	2.318396E-03
898.021	1.824191E-03
1173.237	1.461179E-03
1332.501	1.321243E-03
1836.129	1.011332E-03

EQUATION 0-165 KEV

$$\begin{aligned} \text{LOG(EFF)} = & -6.838496\text{E+00} \\ + & 8.819509\text{E-01} * \text{LOG(ENERGY)} \\ + & -9.970520\text{E-02} * \text{LOG(ENERGY)}^2 \end{aligned}$$

EQUATION 165-1836 KEV

$$\begin{aligned} \text{LOG(EFF)} = & 3.082260\text{E-01} \\ + & -1.410039\text{E+00} * \text{LOG(ENERGY)} \\ + & 1.042090\text{E-01} * \text{LOG(ENERGY)}^2 \\ + & -5.074725\text{E-03} * \text{LOG(ENERGY)}^3 \end{aligned}$$

CEA CALIBRATION RECORD

PROCEDURE LQ-508-003

DETECTOR: 3
 GEOMETRY CODE: 43
 GEOMETRY DESCRIPTION: 22 HL LIQUID, POS 3
 CALIBRATION DATE: 2-JUL-89
 ANALYST(S): J. L. ANDERSON/M. R. DOWELL
 STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	2.020462E-03
88.032	1.924344E-03
122.0614	2.027231E-03
165.853	1.712371E-03
279.1967	
391.668	1.056509E-03
513.99	
661.65	7.115743E-04
898.021	5.243920E-04
1173.237	4.551505E-04
1332.501	4.223636E-04
1436.129	3.139091E-04

EQUATION 0-165 KEV

$$\begin{aligned} \text{LOG(EFF)} = & -5.300788\text{E+00} \\ + & -3.550643\text{E-01} * \text{LOG(ENERGY)} \\ + & 3.272635\text{E-02} * \text{LOG(ENERGY)}^2 \end{aligned}$$

EQUATION 165-1836 KEV

$$\begin{aligned} \text{LOG(EFF)} = & -9.815549\text{E+00} \\ + & 2.402920\text{E+00} * \text{LOG(ENERGY)} \\ + & -4.420077\text{E-01} * \text{LOG(ENERGY)}^2 \\ + & 2.059131\text{E-02} * \text{LOG(ENERGY)}^3 \end{aligned}$$

Single Shell Tank Calibration Record

ANALYTE: Mixed Isotope Standards

PROCEDURE: LQ-508-003

REVISION: A-3

INSTRUMENT: GEA Detector #4

PROPERTY NUMBER: 401934

TECHNOLOGIST: J. L. Anderson

PAYROLL NUMBER: 61413

DATE: September 1, 1989

CALIBRATION STANDARD ID: 56B40 D1

ANALYTE CONCENTRATION: N/A

TYPE OF CALIBRATION: Gamma Energy Analysis (Efficiency)

GEA CALIBRATION RECORD

PROCEDURE LQ-508-003

DETECTOR: 4
 GEOMETRY CODE: 41
 GEOMETRY DESCRIPTION: 22 ML LIQUID, POS 1
 CALIBRATION DATE: 1-Sep-89
 ANALYST(S): J. L. ANDERSON/M. R. DOWELL
 STANDARD ID: 56B40 D1

ENERGY (KEV) EFFICIENCY (COUNTS/GAMMA)

59.536	2.682446E-02
88.032	8.210956E-02
122.0614	1.118411E-01
165.853	1.066653E-01
279.1967	
391.668	5.704220E-02
513.99	
661.65	3.685958E-02
898.021	2.541629E-02
1173.237	2.161710E-02
1332.501	1.973393E-02
1836.129	1.484468E-02

EQUATION 0-165 KEV

$$\text{LOG(EFF)} = -5.844056E+01 + 2.310700E+01 * \text{LOG(ENERGY)} + 2.371355E+00 * \text{LOG(ENERGY)}^2$$

EQUATION 165-1836 KEV

$$\text{LOG(EFF)} = -1.718967E+01 + 8.164155E+00 * \text{LOG(ENERGY)} + 1.384196E+00 * \text{LOG(ENERGY)}^2 + 7.025905E-02 * \text{LOG(ENERGY)}^3$$

GEA CALIBRATION RECORD

PROCEDURE LQ-508-003

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	WA77344
PROCEDURE/REV	LA-925-106/A-2
TECHNOLOGIST	R. Hale
DATE	June 27, 1990
TEMPERATURE	24 C
STARTING TIME	0830
ENDING TIME	1030
CHEMIST	S. A. Catlow

Uranium Analysis

KOH Fusion

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	F0999
2	Reagent Blank	F1000
3	Sample Comp 14	F1001
4	Duplicate Sample Comp 14	F1002
5	Sample Comp 12	F1049
6	Duplicate Sample Comp 12	F1050
7	Spike Sample Comp 12	F1003
8	Final LMCS Check Std	F1052
9		
10		
11		

	DESCRIPTION	LAB ID
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	58B38/1 uL			5.7 mL
Spike	58B38/1 uL	F1001/1 uL		5.7 mL

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	WB39939
PROCEDURE/REV	LA-505-151/A-0
TECHNOLOGIST	J. A. White
DATE	May 14, 1990
TEMPERATURE	N/A
STARTING TIME	0750
ENDING TIME	1510
CHEMIST	S. A. Jones

ICP
Fusion Dissolution

No inter-element corrections
were performed on this data.

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	N/A
2	Sample Comp 15	F1025
3	Reagent Blank	F1024
4	Duplicate Sample Comp 15	F1026
5	Spike Sample Comp 15	F1027
6	LMCS Check Std	N/A
7	LMCS Check Std	N/A
8	Sample Comp 12	F1049
9	Duplicate Sample Comp 12	F1050
10	Acid Digested LMCS Std	F1227
11	Reagent Blank	F1228

	DESCRIPTION	LAB ID
12	Sample 9000B2	F1229
13	Duplicate Sample 9000B2	F1230
14	Spike Sample 9000B2	F1231
15	Acid Digested LMCS Std	F1231
16	Sample 9000B1	F1205
17	Duplicate Sample 9000B1	F1206
18	Sample 89-070	F0433
19	Duplicate Sample 89-070	F0434
20	Sample 89-075	F0552
21	Duplicate Sample 89-075	F0553
22	Final LMCS Check Std	N/A

STANDARD TYPE	PRIMARY Book # & ALIQUOT VOL.	SECOND Book # & ALIQUOT VOL.	THIRD Book # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	78C11M/3.0 mL	82B38D/3.0 mL	77C11L/3.0 mL	3.0 mL
Spike				50.0 mL
Digested Std				50.0 mL

ICP Results

RAW DATA SUMMARY

Date Analyzed:	MAY 14, 1990	Acid Digested Standard	NONE
Procedure:	LA-505-151/A-0	Reagent Blank	F1024
Analyst:	J. A. WHITE	Core 12 Composite	F1049
Digestion	Acid Digestion	Duplicate of Core 12 COMposite	F1050
Procedure:	LA-505-159/A-0	Spike of Core 15 Composite	F1027
		Acid Digested Standard	NONE

	LMCS Standard %	Reagent Blank ppm	Sample ug/g	Duplicate Sample ug/g	Spike Recovery %	LMCS Standard %
Aluminum	101.32%	4.15	126995.	125507.33		99.98%
Antimony	105.82%	4.54	2538.	1510.		102.98%
Arsenic	112.12% #	0.11 LT	378.	58. LT		110.15% #
Barium	95.80%	0.12	143.	24. LT		97.52%
Beryllium	99.06%	0.01 LT	16.	4. LT		95.66%
Bismuth	106.95%	1.08 LT	23941.	21173.	111.87%	108.57%
Boron	98.09%	0.35	1750.	1349.	101.28%	99.35%
Cadmium	95.68%	0.01 LT	12. LT	-25. LT	98.90%	95.14%
Calcium	97.51%	0.73	4493.	3799.	101.45%	99.55%
Cerium	94.87%	4.85	3793.	135. LT		91.05%
Chromium	87.47% #	0.04 LT	910.	770.		87.35% #
Cobalt	93.13%	1.96	612.	346.		92.81%
Copper	97.45%	0.24 LT	393.	164. LT	101.62%	98.59%
Europium	92.78%	0.08	69.	-8. LT		96.77%
Iron	100.01%	1.40	16275.	16088.		101.46%
Lanthanum	89.66% #	0.65	305.	36. LT	92.15%	94.13%
Lead	105.54%	4.09	1503.	1590.	108.07%	105.63%
Lithium	91.80%	0.23	180.	-9. LT		93.04%
Magnesium	98.86%	1.37	1240.	897.	102.34%	100.47%
Manganese	96.90%	0.05	4238.	4097.		97.50%
Mercury	100.70%	0.50	113.	9. LT		98.32%
Molybdenum	99.11%	0.06 LT	152.	23. LT		96.25%
Neodymium	89.51% #	0.90 LT	2094. LT	-1050. LT		83.18% #
Nickel	96.15%	7.43	6363.	7561.		96.15%
Phosphorous	95.15%	2.74	9129.	10495.	110.96%	90.03%
Samarium	103.52%	5.45	4159.	-377. LT		96.08%
Selenium	103.51%	2.15	2036.	1083.		100.40%
Silicon	91.20%	2.82	48465.	64052.		89.20% #
Silver	101.79%	0.33 LT	296.	-16. LT	36.96%	104.86%
Sodium	94.89%	7.19	87949.	91486.		94.72%
Strontium	97.60%	0.07	595.	543.		99.66%
Sulfur	100.23%	1.25	1434.	1059.		96.31%
Tantalum	98.66%	0.60 LT	515.	-33. LT		95.18%
Thallium	104.45%	4.84	6072.	-281. LT		101.41%
Thorium	103.99%	4.21	3079.	127. LT		107.45%
Tin	98.18%	0.18 LT	310.	148. LT		97.72%
Titanium	104.00%	0.10 LT	165.	38. LT		101.98%
Tungsten	81.95% #	0.39 LT	389.	107. LT		81.52% #
Uranium	114.10% #	25.13 LT	28506.	473. LT		103.49%
Vanadium	100.34%	-0.02 LT	268.	-37. LT		95.59%
Zinc	96.78%	0.18	320.	310.	100.03%	96.88%
Zirconium	102.68%	0.60	716.	245.		100.68%

ICP Results

RAW DATA

Page 1 of 4

			Acid Digested Standard		NONE	
Date Analyzed:	MAY 14, 1990		Reagent Blank		F1024	
Procedure:	LA-505-151/A-0		Core 12 Composite		F1049	
Analyst:	J. A. WHITE	Duplicate of Core 12 Composite			F1050	
Digestion	Acid Digestion	Spike of Core 15 Composite			F1027	Digestion Weight
Procedure:	LA-505-159/A-0	Acid Digested Standard			NONE	Volume Sample
	Starting LMCS	Standard	LMCS Acid	Acid	Reagent	Dilution
	Instrument Standard	Recovery	Digestion Standard	Digestion Standard	Blank	Three ppm
	SST-1	SST-2	SST-3	ppm	%	ppm
Aluminum		50.66	101.32%		NA	4.15
Antimony	10.58		105.82%		NA	4.54
Arsenic		56.06	112.12% #		NA	0.11 LT
Barium	9.58		95.80%		NA	0.12
Beryllium		9.91	99.06%		NA	0.01 LT
Bismuth		53.58	106.95%		NA	1.08 LT
Boron	9.81		98.09%		NA	0.35
Cadmium	9.57		95.68%		NA	0.01 LT
Calcium	9.75		97.51%		NA	0.73
Cerium	9.49		94.87%		NA	4.85
Chromium	8.75		87.47% #		NA	0.04 LT
Cobalt	9.31		93.13%		NA	1.96
Copper	9.75		97.45%		NA	0.24 LT
Europium		9.28	92.78%		NA	0.08
Iron	10.00		100.01%		NA	1.40
Lanthanum		44.92	89.66% #		NA	0.65
Lead		52.88	105.54%		NA	4.09
Lithium	9.18		91.80%		NA	0.23
Magnesium	9.89		98.86%		NA	1.37
Manganese	9.69		96.90%		NA	0.05
Mercury		25.17	100.70%		NA	0.50
Molybdenum		49.55	99.11%		NA	0.06 LT
Neodymium	8.95		89.51% #		NA	0.90 LT
Nickel	9.62		96.15%		NA	7.43
Phosphorous		47.58	95.15%		NA	2.74
Potassium	24.31		97.24%		NA	13822.00
Samarium		10.35	103.52%		NA	5.45
Selenium		51.76	103.51%		NA	2.15
Silicon		45.60	91.20%		NA	2.82
Silver		10.18	101.79%		NA	0.33 LT
Sodium	23.72		94.89%		NA	7.19
Strontium	9.76		97.60%		NA	0.07
Sulfur		50.12	100.23%		NA	1.25
Tantalum		49.33	98.66%		NA	0.60 LT
Thallium		52.23	104.45%		NA	4.84
Thorium		52.10	103.99%		NA	4.21
Tin	49.09		98.18%		NA	0.18 LT
Titanium		52.00	104.00%		NA	0.10 LT
Tungsten		20.49	81.95% #		NA	0.39 LT
Uranium		57.17	114.10% #		NA	25.13 LT
Vanadium		10.03	100.34%		NA	-0.02 LT
Zinc	9.68		96.78%		NA	0.18
Zirconium		51.34	102.68%		NA	0.60
Dilution Factor	1.00	1.00	1.00		21.00	

ICP Results

RAW DATA

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	0.00254 g/mL			0.00235 g/mL			0.00290 g/mL					
	Sample	Sample	Digestion Weight	Sample Volume	Sample	Digestion Weight	Sample Volume	Sample	Spike of Sample	Spike of Sample	Spike of Sample	Spike Recovery
	Dilution	Dilution	Duplicate Dilution	Duplicate Dilution	Duplicate Dilution	Dilution	Dilution	Dilution	Dilution	Dilution	Dilution	%
			Two ppm	One ppm	Three ppm		Two ppm	One ppm		Two ppm	One ppm	
Aluminum	345.03	322.67			352.05	294.39			604.93	569.89		
Antimony	5.79	6.45			38.51	3.54			40.45	10.49		
Arsenic	-0.11	0.96			7.88	0.14 LT			40.71	9.16		
Barium	-0.49	0.36			2.54	0.06 LT			2.74	0.53		
Beryllium	-0.03	0.04			0.33	0.01 LT			0.19	0.05		
Bismuth	53.34	60.83			89.84	49.66			1137.20	266.67		111.87%
Boron	18.23	4.45			21.99	3.17			1019.10	214.82		101.28%
Cadmium	-0.40	0.03 LT			0.83	-0.06 LT			989.05	208.44		98.90%
Calcium	12.75	11.42			17.16	8.91			1016.20	215.83		101.45%
Cerium	-15.46	9.64			83.73	0.32 LT			58.24	14.28		
Chromium	1.01	2.31			3.59	1.81			3.63	1.62		
Cobalt	-1.95	1.55			11.70	0.81			16.43	3.93		
Copper	-0.98	1.00			5.83	0.39 LT			1016.90	215.22		101.62%
Europium	-0.42	0.18			1.58	-0.02 LT			1.01	0.25		
Iron	38.63	41.35			36.33	37.74			16.05	19.01		
Lanthanum	-0.81	0.77			6.95	0.08 LT			921.85	195.41		92.15%
Lead	2.99	3.82			24.35	3.73			1084.70	230.75		108.07%
Lithium	-0.88	0.46			4.14	-0.02 LT			2.21	0.56		
Magnesium	9.54	3.15			2.89	2.10			1027.30	214.73		102.34%
Manganese	11.36	10.77			9.98	9.61			7.99	7.32		
Mercury	0.66	0.29			2.18	0.02 LT			3.05	0.31		
Molybdenum	1.61	0.39			2.32	0.05 LT			1.43	0.45		
Neodymium	-22.40	5.32 LT			47.82	-2.46 LT			51.82	12.95		
Nickel	16.08	16.17			21.77	17.73			17.04	14.83		
Phosphorous	20.50	23.20			42.65	24.62			1147.00	267.71		110.96%
Potassium	12154.00	11480.00			12363.00	12287.00			12976.00	11793.00		NOT CALC.
Samarium	-22.01	10.57			96.65	-0.89 LT			54.05	13.59		
Selenium	-0.94	5.17			32.75	2.54			22.23	7.74		
Silicon	540.69	123.14			506.03	150.24			44.90	18.12		
Silver	-1.68	0.75			6.50	-0.04 LT			369.96	100.78		36.96%
Sodium	254.38	223.46			299.63	214.59			1200.20	413.92		
Strontium	1.32	1.51			2.37	1.27			1018.20	217.07		
Sulfur	3.71	3.64			12.68	2.48			28.05	7.29		
Tantalum	-2.30	1.31			12.03	-0.08 LT			7.25	1.81		
Thallium	-8.14	15.43			129.74	-0.66 LT			79.09	18.10		
Thorium	-11.65	7.82			66.04	0.30 LT			37.97	9.75		
Tin	0.27	0.79			4.37	0.35 LT			10.68	2.55		
Titanium	-0.30	0.42			3.29	0.09 LT			1.60	0.44		
Tungsten	-0.83	0.99			9.13	0.25 LT			23.52	5.56		
Uranium	-157.10	72.43			573.71	1.11 LT			405.50	109.62		
Vanadium	-0.74	0.68			4.67	-0.09 LT			2.34	0.47		
Zinc	0.71	0.81			2.15	0.73			1000.90	211.77		100.03%
Zirconium	-0.72	1.82			11.13	0.57			6.09	1.64		
Dilution Factor	101.00	21.00			101.00	21.00			111.00	22.20		

ICP Results

RAW DATA

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	Standard LMCS Acid Digestion ppm	Acid Digestion Standard Recovery %	Ending Standard LMCS	Standard Recovery	Spike Standard LMCS	Spike Standard ID Book #	
				%	ppm added	81C11C	SST-1
Aluminum	NA		49.99	99.98%			
Antimony	NA	10.30		102.98%			10.00
Arsenic	NA		55.07	110.15% #			
Barium	NA	9.75		97.52%			10.00
Beryllium	NA		9.57	95.66%			
Bismuth	NA		54.39	108.57%	100.00		
Boron	NA	9.94		99.35%	100.00		10.00
Cadmium	NA	9.51		95.14%	100.00		10.00
Calcium	NA	9.96		99.55%	100.00		10.00
Cerium	NA	9.11		91.05%			10.00
Chromium	NA	8.74		87.35% #			10.00
Cobalt	NA	9.28		92.81%			10.00
Copper	NA	9.86		98.59%	100.00		10.00
Europium	NA		9.68	96.77%			
Iron	NA	10.15		101.46%			10.00
Lanthanum	NA		47.16	94.13%	100.00		
Lead	NA		52.92	105.63%	100.00		
Lithium	NA	9.30		93.04%			10.00
Magnesium	NA	10.05		100.47%	100.00		10.00
Manganese	NA	9.75		97.50%			10.00
Mercury	NA		24.58	98.32%			
Molybdenum	NA		48.12	96.25%			
Neodymium	NA	8.32		83.18% #			10.00
Nickel	NA	9.62		96.15%			10.00
Phosphorous	NA		45.02	90.03%	100.00		
Potassium	NA	23.44		93.77%	100.00		25.00
Samarium	NA		9.61	96.08%			
Selenium	NA		50.20	100.40%			
Silicon	NA		44.60	89.20% #			
Silver	NA		10.49	104.86%	100.00		
Sodium	NA	23.68		94.72%			25.00
Strontium	NA	9.97		99.66%			10.00
Sulfur	NA		48.16	96.31%			
Tantalum	NA		47.59	95.18%			
Thallium	NA		50.71	101.41%			
Thorium	NA		53.83	107.45%			
Tin	NA	48.86		97.72%			50.00
Titanium	NA		50.99	101.98%			
Tungsten	NA		20.38	81.52% #			
Uranium	NA		51.85	103.49%			
Vanadium	NA		9.56	95.59%			
Zinc	NA	9.69		96.88%	100.00		10.00
Zirconium	NA		50.34	100.68%			

ICP Results

RAW DATA

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	LMCS Standards Values	LMCS Standard IDs Book	ACID DIGESTION LMCS STANDARD VALUES	ACID DIGEST. LMCS IDs Book	
	SST-2	SST-3	ppm #	ppm in Sample	# not analyzed
Aluminum		50.00		100.00	
Antimony					
Arsenic		50.00			
Barium				100.00	
Beryllium		10.00			
Bismuth		50.10		100.00	
Boron				100.00	
Cadmium				100.00	
Calcium				100.00	
Cerium				100.00	
Chromium				100.90	
Cobalt				100.00	
Copper				100.00	
Europium		10.00			
Iron				100.00	
Lanthanum		50.10		100.00	
Lead		50.10		100.00	
Lithium				100.00	
Magnesium				100.00	
Manganese				100.00	
Mercury		25.00			
Molybdenum		50.00		99.80	
Neodymium				100.00	
Nickel				100.00	
Phosphorous		50.00		100.00	
Potassium				100.00	
Samarium		10.00			
Selenium			50.00		
Silicon			50.00	100.00	
Silver		10.00			
Sodium				100.00	
Strontium				100.00	
Sulfur		50.00			
Tantalum		50.00		99.50	
Thallium			50.00		
Thorium		50.10			
Tin				100.00	
Titanium			50.00	100.10	
Tungsten			25.00		
Uranium		50.10			
Vanadium			10.00		
Zinc				100.00	
Zirconium		50.00		99.80	
Dilution Factor				10.00	

ICP Calibration Report

Procedure: LA-505-151 Revision: A-0
Instrument: WB39939
Technologist: J.A. White
Date: MAY 14, 1990

Calibration Standards for ICP Program "SST"

Element	Standard	Element	Standard
Aluminum	SST-3	Antimony	SST-4
Arsenic	SST-4	Barium	SST-2
Beryllium	SST-2	Bismuth	SST-4
Boron	SST-3	Cadmium	SST-2
Calcium	SST-2	Cerium	SST-5
Chromium	SST-2	Cobalt	SST-2
Copper	SST-2	Europium	SST-5
Iron	SST-2	Lanthanum	SST-5
Lead	SST-4	Lithium	SST-1
Magnesium	SST-2	Manganese	SST-2
Mercury	SST-3	Molybdenum	SST-3
Neodymium	SST-5	Nickel	SST-2
Phosphorous	SST-3	Potassium	SST-1
Samarium	SST-5	Selenium	SST-4
Silicon	SST-3	Silver	SST-2
Sodium	SST-1	Strontium	SST-2
Sulfur	SST-3	Tantalum	SST-3
Thallium	SST-4	Thorium	SST-4
Tin	SST-4	Titanium	SST-3
Tungsten	SST-3	Uranium	SST-4
Vanadium	SST-2	Zinc	SST-2
Zirconium	SST-3		

ICP Standard Formulations

SST-0:
Calibration blank, 1 M ultrex HNO₃.

SST-1:

Stock solutions from AESAR/John Mathey Inc., Seabrook, NH 03874.
Individual element solutions as follows:

Li LiCO₃ 10,000 ppm in 5% HNO₃ Lot# 14394A
K KNO₃ 10,000 ppm in 5% HNO₃ Lot# 14379A
Na NaCO₃ 10,000 ppm in 5% HNO₃ Lot# 14400A

200 mL of standard made by combining 25 mL HCl/HNO₃ mixed acid, 1 mL each single element standards, and water.

SST-2:

Stock solutions from VHG labs, Inc., 180 Zachary Rd. #5, Manchester, NH 03103. Mixed element standards as follows:

SM-10 Li, Na, K, Rb, Cs, Be, Mg, Ca, Sr, & Ba 100 ppm
Lot# 0-119A
SM-20 V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ag, & Cd 100 ppm
Lot# 0-119B

50 mL of each mixed standard are added to a 250 mL volumetric flask and diluted to volume with 1 M HNO₃.

SST-3:

Stock solutions from AESAR/John Mathey Inc., Seabrook, NH 03874.
Individual element solutions as follows:

Al Al 10,000 ppm in 10% HCl Lot# 9-053A
B H₃BO₃ 10,000 ppm in 1% NH₄OH Lot# 9-335A
Hg Hg 10,000 ppm in 5% HNO₃ Lot# 8-656S
Mo Mo 10,000 ppm in 5% HCl Lot# 9-159T
P P 10,000 ppm in 5% HNO₃ Lot# 9-160A
Si Si 1000 ppm in KOH Lot# 086DM Spex Industries, Edison, NJ
S (NH₄)₂SO₄ in H₂O Lot# 9-231M
Ta TaCl₅ 10,000 ppm in 5% HCl/tr HF Lot# 9-335M
Ti Ti 10,000 ppm in 5% HF Lot# 9-079EE
W W 10,000 ppm in 5% HF/tr HNO₃, Lot# 8-685L
Zr ZrCl₂O 10,100 ppm in 5% HCl Lot# 9-078G

50 mL of each mixed standard are added to a 250 mL volumetric flask and diluted to volume with 1 M HNO₃.

SST-4:

Stock solution from VHG labs, Inc., 180 Zachary Rd. #5, Manchester, NH 03103. Mixed element standard as follows:

SM-50 Ga, In, Tl, Ge, Sn, Pb, As, Sb, Bi, Se, Te, Th, & U 100 ppm Lot# 0-119D

Solution is used directly for calibration.

SST-5:

Stock solution from VHG labs, Inc., 180 Zachary Rd. #5, Manchester, NH 03103. Mixed element standard as follows:

SM-60 Sc, Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, & Lu 100 ppm Lot# 7-165F

50 mL of SM-60 is added to a 250 mL volumetric flask and diluted to volume with 1 M HNO₃.

Sample name Programme	:	HNO3 SSI		
			14-May-90 11:18:28	
NAME	MV	INT	CONCEN	RSD
Al	2.84	-0.062	-105.92	
Sb	0.63	0.142	28.87	
As	1.97	-0.019	-32.51	
Ba	5.37	-0.007	-35.72	
Be	1.16	-0.000	-46.65	
Bi	8.03	-0.069	-39.93	
K	7.48	0.018	61.96	
Cd	4.41	-0.004	-28.33	
Ca	0.68	0.001	11.77	
Ce	7.54	-0.160	-55.32	
Cr	2.06	-0.016	-11.23	
Co	0.22	0.077	19.09	
Cu	4.15	-0.016	-36.33	
Eu	5.66	-0.004	-31.00	
Fe	2.91	-0.006	-24.52	
La	0.42	0.000		
Pb	0.35	0.068	32.48	
Li	5.16	-0.009	-39.01	
Mg	0.89	0.000	853.00	
Mn	1.26	-0.000	-60.27	
Hg	7.50	-0.000	-7067.7	
Mo	3.54	-0.004	-70.14	
Nd	7.55	-0.233	-48.67	
Ni	6.83	-0.006	-46.71	
P	2.18	0.068	15.15	
K	4.07	-0.065	-195.73	
Sm	6.82	-0.224	-46.79	
Se	3.19	0.003	633.11	
Si	4.85	-0.039	-43.08	
Ag	30.40	0.286	18.98	
Na	7.46	-0.115	-42.42	
Sr	4.84	-0.002	-53.77	
S	1.16	0.023	24.03	
Ta	6.05	-0.023	-46.32	
Tl	6.70	-0.400	-46.55	
Th	1.44	-0.113	-66.12	
Sn	2.52	0.004	234.74	
Ti	5.41	-0.008	-38.46	
W	2.67	-0.020	-27.88	
U	7.17	-1.707	-38.66	
V	6.53	-0.022	-20.61	
Zn	6.11	-0.000	-319.37	
Zr	6.21	-0.017	-67.00	

Sample name : 78C11M
Sample code 1 : SST1
Sample code 2 : DIRECT
Sample code 3 : 000015
Programme : SST 14-May-90 11:22:14

NAME	MV	INT	CONCEN	RSD
Al	2.88	0.051	19.52	
Sb	1.67	10.707	0.47	
As	2.16	0.084	3.61	
Ba	189.61	10.366	0.74	
Be	1.19	0.001	40.77	
Bi	8.10	-0.017	-102.80	
B	152.33	10.627	0.73	
Cd	291.54	9.976	0.78	
Ca	259.92	10.601	0.82	
Cr	14.35	9.172	0.75	
Co	52.32	9.311	0.95	
Cr	1.38	11.195	1.86	
Cu	61.17	10.447	0.76	
Eu	6.32	0.020	1.40	
Fe	86.62	10.676	0.68	
La	0.45	0.065	5.33	
Pb	0.36	0.093	13.64	
Li	97.23	9.839	0.72	
Mg	317.22	10.608	0.77	
Mn	195.88	10.367	0.86	
Hg	7.49	-0.000	-427.72	
Mo	3.64	0.008	15.08	
Nd	16.37	8.931	1.44	
Ni	132.01	10.115	0.76	
P	2.22	0.089	30.82	
K	10.00	24.731	0.59	
Sm	6.73	-0.392	-8.29	
Se	5.74	3.235	1.74	
Si	4.89	-0.017	-26.40	
Ag	26.42	0.133	29.86	
Na	38.43	24.801	0.65	
Sr	342.39	10.562	0.79	
S	1.49	0.343	8.68	
Ta	6.05	-0.023	-23.74	
Tl	6.92	0.067	181.96	
Th	1.47	0.065	53.31	
Sn	204.24	50.887	0.73	
Ti	5.38	-0.011	-6.37	
W	3.03	0.168	2.71	
U	7.56	2.337	6.43	
V	6.57	-0.018	-31.56	
Zn	425.12	10.195	0.76	
Zr	6.22	-0.017	-13.93	

Sample name : F1028
Sample code 1 : 03E3GD
Sample code 2 : SST2
Sample code 3 : DIRECT
Programme : SST 14-May-90 11:26:20

NAME	MV	INT	CONCEN	RSD
Al	5.40	6.011	1.48	
Sb	0.71	0.968	2.77	
As	5.39	1.865	0.57	
Ba	5.94	0.025	10.97	
Be	1.24	0.003	32.75	
Bi	82.41	54.315	0.99	
B	8.79	0.113	2.85	
Cd	4.74	0.007	13.07	
Ca	1.08	0.018	1.39	
Ce	8.29	0.868	10.25	
Cr	2.61	0.086	3.09	
Co	0.23	0.126	16.01	
Cu	5.91	0.308	2.93	
Eu	271.39	9.677	0.92	
Fe	2.90	-0.007	-72.30	
La	15.91	46.296	0.90	
Pb	4.53	53.104	1.12	
Li	5.38	0.015	28.64	
Mg	0.83	(-0.002	-6.45	
Mn	1.49	0.012	6.36	
Hg	8.71	0.047	7.37	
Mo	3.80	0.027	8.55	
Nd	8.58	0.842	3.31	
Ni	7.46	0.045	15.67	
P	2.68	0.347	11.04	
K	4.18	0.422	29.84	
Sm	12.49	10.003	1.47	
Se	3.50	0.402	11.18	
Si	6.39	0.810	3.40	
Ag	297.52	10.533	1.01	
Na	7.86	0.209	25.94	
Sr	5.28	0.012	11.19	
S	1.38	0.240	6.50	
Ta	6.99	0.220	5.61	
Tl	10.17	7.033	1.00	
Th	10.23	53.283	0.93	
Sn	2.86	0.089	3.60	
Ti	6.43	0.082	4.23	
W	2.82	0.059	19.62	
U	12.50	54.561	1.45	
V	9.15	0.239	1.34	
Zn	7.00	0.021	3.37	
Zr	7.02	0.170	6.32	

Sample name : F1028
Sample code 1 : 77C11L
Sample code 2 : SST3
Sample code 3 : DIRECT
Programme : SST 14-May-90 11:30:16

NAME	MV	INT	CONCEN	RSD
Al	24.24	50.691	1.23	
Sb	0.76	1.471	6.36	
As	104.53	56.479	1.45	
Ba	6.04	0.030	9.32	
Be	254.13	9.766	0.76	
Bi	9.93	1.325	2.94	
Br	8.78	0.112	3.21	
Cd	5.04	0.018	6.22	
Ca	1.21	0.023	1.42	
Ce	8.08	0.577	18.08	
Cr	2.41	0.049	10.95	
Co	0.25	0.280	7.96	
Cu	4.73	0.090	7.11	
Eu	6.09	0.011	17.05	
Fe	2.89	-0.008	-29.28	
La	0.44	0.054	19.25	
Pb	0.38	0.347	13.19	
Li	5.49	0.026	20.10	
Mg	0.77	(-0.004	-4.27	
Mn	1.62	0.019	4.38	
Hg	664.74	25.571	1.27	
Mo	421.24	49.207	1.35	
Nd	8.20	0.451	19.61	
Ni	13.46	0.530	1.24	
P	99.02)54.105	1.69	
K	4.37	0.777	15.75	
Sm	7.35	0.728	17.90	
Se	44.21	51.899	1.66	
Si	87.55	45.514	1.38	
Ag	35.06	0.464	1.91	
Na	8.15	0.446	13.18	
Sr	5.25	0.011	10.08	
S	55.85)52.449	1.66	
Ta	195.11	48.924	1.44	
Tl	31.26	52.145	0.50	
Ih	1.69	1.441	3.82	
Sn	3.56	0.265	3.72	
Ti	584.48	51.527	1.32	
W	43.26	20.737	1.17	
U	8.97	17.241	0.99	
V	105.21	9.819	1.84	
Zn	7.86	0.042	2.25	
Zr	215.15	50.843	1.25	

Sample name	:	HNO3		
Programme	:	SST		
		14-May-90 12:40:45		
NAME	MV	INT	CONCEN	RSD
Al	2.88	0.032	195.10	
Sb	0.63	0.128	55.26	
As	2.01	0.003	212.00	
Ba	5.52	0.001	231.78	
Be	1.18	0.000	145.03	
Bi	8.14	0.014	465.18	
B	7.46	0.016	34.07	
Cd	4.46	-0.002	-54.89	
Ca	0.70	0.002	3.39	
Ce	7.74	0.107	101.82	
Cr	2.10	-0.009	-46.41	
Co	0.22	0.042	58.08	
Cu	4.26	0.005	122.06	
Eu	5.82	0.002	138.04	
Fe	2.92	-0.004	-72.82	
La	0.43	0.011	41.66	
Pb	0.35	0.055	46.15	
Li	5.28	0.004	121.57	
Mg	0.89	-0.000	-96.63	
Mn	1.27	0.000	145.19	
Hg	7.75	0.010	47.59	
Mo	3.59	0.002	145.51	
Nd	7.71	-0.062	-188.50	
Ni	6.99	0.006	57.11	
P	2.17	0.062	38.33	
K	4.09	0.019	737.13	
Sm	7.00	0.099	122.31	
Se	3.23	0.056	43.20	
Si	4.98	0.033	66.64	
Ag	23.17	0.008	96.59	
Na	7.64	0.029	205.78	
Sr	4.95	0.002	85.39	
S	1.17	0.036	57.26	
Ta	6.18	0.011	173.12	
Tl	6.98	0.201	68.73	
Th	1.47	0.083	102.53	
Sn	2.55	0.011	97.69	
Ti	5.55	0.004	70.77	
W	2.73	0.013	82.24	
U	7.36	0.275	251.30	
V	6.80	0.005	165.35	
Zn	6.11	-0.000	-302.97	
Zr	6.35	0.017	66.26	

Sample name : F1047
Sample code 1 : 78C11M
Sample code 2 : SST *yes 6-14-90*
Sample code 3 : 000012
Programme : SST 14-May-90 12:45:54

NAME	MV	INT	CONCEN	RSD
Al	3.11	0.575	4.75	
Sb	1.66	10.582	0.96	
As	2.29	0.159	1.64	
Br	175.65	9.580	0.35	
Be	1.38	0.004	7.87	
Bi	8.72	0.441	3.24	
B	141.17	9.809	0.38	
Cd	279.79	9.568	0.24	
Ca	239.13	9.751	0.39	
Ce	14.58	9.487	0.71	
Cr	49.28	8.747	0.44	
Co	1.18	9.313	3.65	
Cu	57.35	9.745	0.31	
Eu	6.81	0.038	1.59	
Fe	81.33	10.001	0.39	
La	0.47	0.130	4.80	
Pb	0.37	0.304	6.36	
Li	91.07	9.180	0.32	
Mg	295.70	9.886	0.43	
Mn	183.18	9.690	0.35	
Hg	8.01	0.020	9.23	
Mo	3.91	0.040	3.73	
Nd	16.39	8.951	1.86	
Ni	125.83	9.615	0.29	
P	2.46	0.225	4.68	
K	9.90	24.309	0.39	
Sm	7.39	0.797	5.76	
Se	5.81	3.327	0.24	
Si	5.31	0.216	4.94	
Ag	24.52	0.060	5.03	
Na	37.09	23.723	0.34	
Sr	316.77	9.760	0.39	
S	1.60	0.446	1.71	
Ta	6.61	0.122	9.90	
Tl	7.65	1.639	7.98	
Th	1.59	0.842	4.50	
Sn	197.11	49.089	0.39	
Ti	5.80	0.026	4.73	
W	3.23	0.266	3.33	
U	8.21	9.210	3.24	
V	7.16	0.040	9.73	
Zn	403.87	9.678	0.28	
Zr	6.70	0.101	5.58	

Sample name : F1047
Sample code 1 : 93B38D
Sample code 2 : SST2
Sample code 3 : 000012
Programme : SST 14-May-90 12:50:29

NAME	MV	INT	CONCEN	RSD
Al		5.50	6.259	0.31
Sb		0.74	1.272	6.01
As		5.50	1.927	0.92
Ba		6.28	0.044	5.88
Be		1.30	0.005	3.44
Bi		81.41	53.582	0.48
B		9.01	0.129	4.11
Cd		4.99	0.016	2.96
Ca		1.10	0.018	0.40
Ce		8.76	1.504	5.20
Cr		2.72	0.107	4.28
Co		0.23	0.158	9.35
Cu		6.11	0.345	1.53
Eu		260.44	9.278	0.36
Fe		3.00	0.006	14.48
La		15.45	>44.922	0.36
Pb		4.52	52.875	0.25
Li		5.69	0.047	8.87
Mg		0.85	-0.001	-4.28
Mn		1.55	0.015	3.68
Hg		9.03	0.060	3.85
Mo		4.00	0.050	4.09
Nd		9.05	1.326	6.32
Ni		7.80	0.073	6.00
P		2.79	0.403	6.95
K		4.36	1.163	8.12
Sm		12.68	10.352	0.83
Se		3.70	0.556	4.94
Si		6.65	0.955	2.40
Ag		288.29	10.179	0.74
Na		8.33	0.587	8.81
Sr		5.53	0.020	4.98
S		1.44	0.293	9.66
Ta		7.36	0.317	3.15
Tl		10.49	7.716	2.09
Th		10.04	52.099	0.29
Sn		3.03	0.130	1.17
Ti		6.71	0.107	2.12
W		2.97	0.134	8.16
U		12.75	57.165	0.80
V		9.43	0.267	2.54
Zn		7.28	0.028	1.84
Zr		7.32	0.253	4.43

Sample name : F1047
Sample code 1 : 77C11L
Sample code 2 : SST3
Sample code 3 : 000012
Programme : SST 14-May-90 12:54:31

NAME	MV	INT	CONCEN	RSD
A1	24.23	50.662	1.38	
Sb	0.75	1.407	5.05	
As	103.77	56.062	1.45	
Ba	5.80	0.017	9.18	
Be	257.78	9.906	0.70	
Bi	9.67	1.131	1.36	
B	8.37	0.083	3.24	
Cd	4.86	0.011	7.18	
Ca	1.22	0.023	1.51	
Ce	7.77	0.156	41.54	
Cr	2.35	0.037	3.30	
Co	0.23	0.126	11.75	
Cu	4.57	0.062	4.70	
Eu	5.85	0.003	38.68	
Fe	2.80	(-0.020	-27.00	
La	0.43	0.024	33.07	
Pb	0.37	0.317	10.07	
Li	5.28	0.003	102.17	
Mg	0.76	(-0.005	-0.00	
Mn	1.60	0.018	1.82	
Hg	654.53	25.174	0.92	
Mo	424.18	49.553	1.19	
Nd	7.94	0.174	50.24	
Ni	13.25	0.513	1.76	
P	87.32	47.575	0.37	
K	4.09	0.028	536.88	
Sm	7.06	0.199	36.91	
Se	44.10	51.756	1.02	
Si	87.71	45.601	1.90	
Ag	33.11	0.390	2.22	
Na	7.83	0.182	24.06	
Sr	5.07	0.005	14.66	
S	53.42	50.117	0.78	
Ta	196.67	49.329	0.98	
Tl	31.29	52.227	0.74	
Th	1.63	1.083	3.73	
Sn	3.51	0.252	1.88	
Ti	589.81	>52.001	1.46	
W	43.32	20.771	1.57	
U	8.62	13.550	1.71	
V	107.36	10.034	0.37	
Zn	7.75	0.040	1.28	
Zr	217.19	51.341	1.50	

Sample name : F1049
 Sample code 1 : SAMPLE
 Sample code 2 : 101
 Sample code 3 : 000012
 Programme : SST 14-May-90 12:58:57

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	4.30	3.416	345.03	1.39	
Sb	0.62	0.057	5.794	46.69	
As	2.00	-0.001	-0.111	-629.18	
Ba	5.41	-0.005	-0.487	-20.50	
Be	1.16	-0.000	-0.029	-75.92	
Bi	8.84	0.528	53.338	1.73	
B	9.71	0.180	18.225	2.01	
Cd	4.42	-0.004	-0.397	-13.31	
Ca	3.74	0.126	12.746	0.38	
Cr	7.55	-0.153	-15.46	-20.16	
Cr	2.20	0.010	1.006	36.53	
Co	0.21	-0.019	-1.950	-76.38	
Cu	4.18	-0.010	-0.976	-22.01	
Eu	5.66	-0.004	-0.417	-16.30	
Fe	5.95	0.382	38.632	0.21	
La	0.42	-0.008	-0.805	-43.30	
Pb	0.35	0.030	2.990	42.06	
Li	5.16	-0.009	-0.882	-8.60	
Mg	3.71	0.094	9.541	0.43	
Mn	3.38	0.112	11.356	1.17	
Hg	7.67	0.007	0.658	41.99	
Mo	3.71	0.016	1.614	106.12	
Nd	7.56	-0.222	-22.40	-5.81	
Ni	8.87	0.159	16.076	1.78	
P	2.43	0.203	20.497	6.33	
K	32.88	120.34	12154	0.16	
Sm	6.83	-0.218	-22.01	-16.60	
Se	3.18	-0.009	-0.937	-36.08	
Si	14.64	5.353	540.69	0.86	
As	22.52	-0.017	-1.680	-12.25	
Na	10.73	2.519	254.38	0.98	
Sr	5.31	0.013	1.315	3.26	
S	1.17	0.037	3.711	16.29	
Ta	6.05	-0.023	-2.301	-32.47	
Tl	6.85	-0.081	-8.140	-221.80	
Th	1.44	-0.115	-11.65	-18.98	
Sn	2.52	0.003	0.272	129.34	
Ti	5.47	-0.003	-0.300	-7.94	
W	2.69	-0.008	-0.826	-193.78	
U	7.19	-1.556	-157.1	-13.27	
V	6.68	-0.007	-0.742	-105.93	
Zn	6.42	0.007	0.706	7.24	
Zr	6.26	-0.007	-0.721	-62.15	

Dilution factor : 101.000

Sample name : F1049
 Sample code 1 : SAMPLE
 Sample code 2 : 21
 Sample code 3 : 000012
 Programme : SST 14-May-90 13:03:58

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	9.34	15.365	322.67	0.71	
Sb	0.65	0.307	6.448	38.21	
As	2.09	0.046	0.960	19.33	
Ba	5.80	0.017	0.363	20.44	
Be	1.22	0.002	0.041	21.39	
Bi	12.08	2.897	60.829	1.59	
B	10.14	0.212	4.447	1.56	
Cd	4.57	0.001	0.030	132.30	
Ca	13.95	0.544	11.416	0.99	
Ce	8.00	0.459	9.636	26.62	
Cr	2.74	0.110	2.312	2.92	
Co	0.22	0.074	1.554	13.04	
Cu	4.49	0.048	0.998	16.52	
Eu	6.00	0.008	0.175	28.52	
Fe	18.39	1.969	41.352	0.55	
La	0.44	0.037	0.774	18.73	
Pb	0.36	0.182	3.819	18.46	
Li	5.45	0.022	0.457	26.40	
Mg	5.36	0.150	3.151	0.80	
Mn	10.89	0.513	10.769	0.90	
Hg	7.85	0.014	0.288	21.17	
Mo	3.73	0.018	0.385	24.31	
Nd	8.01	0.253	5.320	34.65	
Ni	16.43	0.770	16.167	0.67	
P	4.04	1.105	23.195	2.32	
K	134.92	1546.66	> 11480	0.97	
Sm	7.33	0.503	10.566	29.04	
Se	3.38	0.246	5.172	20.39	
Si	15.57	5.864	123.14	0.54	
Ag	23.89	0.036	0.753	28.30	
Na	20.83	10.641	223.46	0.52	
Sr	7.20	0.072	1.512	1.48	
S	1.31	0.173	3.643	4.29	
Ta	6.38	0.062	1.308	28.67	
Tl	7.23	0.735	15.427	23.16	
Th	1.52	0.372	7.822	27.78	
Sn	2.66	0.038	0.788	6.07	
Ii	5.73	0.020	0.418	22.13	
W	2.80	0.047	0.988	40.32	
U	7.66	3.449	72.429	25.34	
V	7.08	0.032	0.682	21.21	
Zn	7.72	0.039	0.814	4.23	
Zr	6.64	0.087	1.920	15.08	

Dilution factor : 21.0000

Sample name : F1050
 Sample code 1 : DUPSAM
 Sample code 2 : 101
 Sample code 3 : 000012
 Programme : SST 14-May-90 13:08:01

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	4.33	3.486	352.05	0.37	
Sb	0.65	0.381	38.511	2.65	
As	2.14	0.078	7.882	16.84	
Ba	5.94	0.025	2.540	7.90	
Be	1.26	0.003	0.334	17.43	
Bi	9.34	0.890	89.841	3.54	
B	10.22	0.218	21.986	1.19	
Cd	4.77	0.008	0.826	23.75	
Ca	4.80	0.170	17.157	0.77	
Ce	8.27	0.829	83.734	8.46	
Cr	2.34	0.036	3.592	12.24	
Co	0.23	0.116	11.701	9.62	
Cu	4.55	0.058	5.825	8.92	
Eu	6.20	0.016	1.582	9.60	
Fe	5.78	0.360	36.329	1.17	
La	0.45	0.069	6.945	19.92	
Pb	0.37	0.241	24.345	16.93	
Li	5.63	0.041	4.141	7.46	
Mg	1.74	0.029	2.887	0.88	
Mn	3.12	0.099	9.984	0.55	
Hg	8.05	0.022	2.176	11.06	
Mo	3.77	0.023	2.316	19.87	
Nd	8.23	0.473	47.816	16.82	
Ni	9.57	0.216	21.770	1.65	
P	2.82	0.422	42.646	1.99	
K	33.38	>122.41	>12363	0.57	
Sm	7.48	0.957	96.650	8.40	
Se	3.44	0.324	32.752	11.15	
Si	14.02	5.010	506.03	0.41	
Ag	24.63	0.064	6.499	8.13	
Na	11.29	2.967	299.63	0.89	
Sr	5.65	0.023	2.367	3.83	
S	1.26	0.126	12.682	7.09	
Ta	6.60	0.119	12.028	10.08	
Tl	7.49	1.285	129.74	1.78	
In	1.56	0.654	66.036	8.78	
Sn	2.68	0.042	4.374	18.05	
Ti	5.87	0.033	3.287	8.69	
W	2.88	0.090	9.125	20.98	
U	7.87	5.680	573.71	8.95	
V	7.22	0.046	4.667	8.04	
Zn	7.00	0.021	2.147	8.36	
Zr	6.74	0.110	11.129	8.22	

Dilution factor : 101.000

Sample name : F1050
 Sample code 1 : DUPSAM
 Sample code 2 : 21
 Sample code 3 : 000012
 Programme : SST 14-May-90 13:13:29

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	8.77	14.019	294.39	1.19	
Sb	0.63	0.169	3.543	6.00	
As	2.01	0.006	0.135	158.59	
Ba	5.54	0.003	0.057	115.37	
Be	1.18	0.000	0.010	79.20	
Bi	11.35	2.365	49.663	0.56	
B	9.30	0.151	3.165	2.00	
Cd	4.45	-0.003	-0.058	-39.02	
Ca	11.03	0.424	8.912	1.76	
Ce	7.67	0.015	0.317	723.56	
Cr	2.61	0.086	1.807	6.71	
Co	0.22	0.039	0.811	52.04	
Cu	4.34	0.018	0.385	33.29	
Eu	5.75	-0.001	-0.018	-260.03	
Fe	17.04	1.797	37.737	1.99	
La	0.43	0.004	0.084	346.40	
Pb	0.36	0.178	3.730	10.91	
Li	5.23	-0.001	-0.021	-510.55	
Mg	3.88	0.100	2.104	1.78	
Mn	9.86	0.458	9.611	1.40	
Hg	7.53	0.001	0.020	324.01	
Mo	3.59	0.003	0.054	134.09	
Nd	7.66	-0.117	-2.464	-94.27	
Ni	17.35	0.844	17.734	0.98	
P	4.16	1.172	24.617	2.69	
K	144.12)585.10) 12287	1.42	
Sm	6.92	-0.042	-0.885	-315.85	
Se	3.28	0.121	2.541	44.98	
Si	17.91	7.154	150.24	1.14	
Ag	22.91	-0.002	-0.038	-556.42	
Na	20.30	10.219	214.59	1.09	
Sr	6.84	0.061	1.274	1.06	
S	1.26	0.118	2.483	11.94	
Ia	6.12	-0.004	-0.078	-477.90	
Tl	6.87	-0.031	-0.659	-172.66	
In	1.46	0.014	0.298	624.44	
Sn	2.58	0.016	0.346	59.88	
Li	5.55	0.004	0.088	84.69	
W	2.73	0.012	0.251	80.06	
U	7.34	0.053	1.109	1446.05	
V	6.71	-0.004	-0.087	-82.56	
Zn	7.55	0.035	0.728	0.61	
Zr	6.40	0.027	0.574	40.38	

Dilution factor : 21.0000

Sample name : F1227
Sample code 1 : DIGSTD
Sample code 2 : DIRECT
Sample code 3 : 9000B2
Programme : SST 14-May-90 13:20:49

NAME	MV	INT	CONCEN	RSD
Al	5.15	5.424	0.44	
Sb	0.74	1.248	3.38	
As	11.77	5.379	0.81	
Ba	22.28	0.945	0.44	
Be	25.36	0.934	1.50	
Bi	15.22	5.188	1.45	
B	21.07	1.013	1.15	
Cd	31.00	0.920	0.50	
Ca	37.74	1.517	0.77	
Ce	8.24	0.793	12.79	
Cr	6.88	0.879	0.65	
Co	0.30	0.846	1.98	
Cu	9.61	0.986	0.38	
Eu	31.11	0.923	0.63	
Fa	12.40	1.205	0.54	
La	1.90	4.422	0.62	
Pb	0.75	5.032	0.39	
Li	13.44	0.877	0.58	
Mg	33.59	1.096	0.57	
Mn	19.28	0.960	0.74	
Hg	65.01	2.237	0.28	
Mo	43.40	4.693	0.52	
Nd	8.47	0.723	14.16	
Ni	19.09	0.985	0.58	
P	10.04	4.454	2.07	
K	4.65	2.386	5.27	
Sm	7.36	0.744	16.53	
Se	7.22	5.103	0.31	
Si	7.44	1.386	0.86	
Ag	49.98	1.037	0.81	
Na	10.70	2.493	2.65	
Sr	36.01	0.974	0.53	
S	6.14	4.800	0.76	
Ta	19.97	3.582	2.84	
Tl	9.41	5.410	3.34	
Ih	2.30	5.097	1.07	
Sn	21.26	4.730	0.33	
Ti	61.37	4.972	0.60	
W	6.36	1.868	0.91	
U	7.83	5.216	15.49	
V	16.22	0.944	0.60	
Zn	45.48	0.957	0.68	
Zr	26.14	4.834	0.46	

Sample name : F1228
Sample code 1 : BLANK
Sample code 2 : DIRECT
Sample code 3 : 900B2
Programme : SST 14-May-90 13:24:52

NAME	MV	INT	CONCEN	RSD
Al	2.92	0.141	23.04	
Sb	0.64	0.223	21.48	
As	2.05	0.026	37.82	
Ba	5.58	0.005	15.00	
Be	1.21	0.002	32.15	
Bi	8.34	0.163	12.66	
B	9.02	0.130	4.05	
Cd	4.54	0.000	136.81	
Ca	10.94	0.421	1.14	
Ce	7.80	0.188	18.95	
Cr	4.93	0.516	1.13	
Co	0.22	0.061	32.87	
Cu	4.37	0.026	7.85	
Eu	5.85	0.003	20.69	
Fe	25.86	2.923	1.11	
La	0.43	0.015	69.28	
Pb	0.36	0.114	23.13	
Li	5.31	0.008	15.59	
Mg	3.31	0.081	0.74	
Mn	2.37	0.059	1.25	
Hg	8.04	0.021	97.49	
Mo	3.76	0.022	18.13	
Nd	7.78	0.008	345.30	
Ni	11.83	0.398	1.35	
P	2.33	0.150	6.99	
K	4.18	0.429	9.59	
Sm	7.04	0.164	19.07	
Se	3.42	0.296	12.62	
Si	6.13	0.665	5.39	
A ₃	23.27	0.012	17.85	
Na	8.00	0.320	2.11	
Sr	5.05	0.005	8.06	
S	1.28	0.136	7.11	
Ta	6.25	0.028	30.87	
Tl	7.03	0.310	15.84	
I _h	1.48	0.164	9.80	
Sn	2.70	0.047	6.75	
Ti	6.00	0.044	2.08	
W	2.80	0.046	14.03	
U	7.39	0.598	29.12	
V	6.81	0.006	124.80	
Zn	6.86	0.018	4.26	
Zr	6.39	0.026	5.23	

Sample name : F1229
 Sample code 1 : SAMPLE
 Sample code 2 : 101
 Sample code 3 : 9000B2
 Programme : SST

14-May-90 13:31:18

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	3.14	0.666	67.297	7.41	
Sb	0.66	0.452	45.667	14.68	
As	2.14	0.076	7.641	14.73	
Ba	5.95	0.025	2.566	7.98	
Be	1.26	0.003	0.335	13.77	
Bi	8.65	0.389	39.259	5.32	
B	7.94	0.051	5.176	6.03	
Cd	4.75	0.008	0.763	18.18	
Ca	11.93	0.461	46.591	0.90	
Cr	8.28	0.846	85.488	8.30	
Cr	2.24	0.018	1.774	4.27	
Co	0.23	0.132	13.326	7.32	
Cu	4.51	0.051	5.170	10.32	
Eu	6.20	0.016	1.580	10.41	
Fe	7.68	0.603	60.929	0.97	
La	0.45	0.070	7.045	4.95	
Pb	0.37	0.309	31.178	7.12	
Li	5.62	0.040	4.044	8.92	
Mg	4.37	0.117	11.775	0.84	
Mn	1.82	0.030	2.993	1.47	
Hg	9.13	0.063	6.396	4.06	
Mo	3.80	0.027	3.713	12.47	
Nd	8.27	0.520	52.534	19.76	
Ni	7.34	0.035	3.514	10.41	
P	2.35	0.159	16.082	16.81	
K	4.35	1.118	112.95	9.20	
Sm	7.47	0.942	95.191	9.78	
Se	3.42	0.303	30.580	14.35	
Si	5.44	0.287	28.948	5.39	
Ag	24.62	0.064	6.431	8.81	
Na	8.65	0.842	85.056	5.99	
Sr	5.55	0.020	2.067	4.31	
S	1.29	0.154	15.555	6.05	
Ta	6.59	0.118	11.880	8.80	
Tl	7.43	1.158	116.91	17.20	
Th	1.57	0.666	67.262	7.65	
Sn	2.70	0.048	4.841	9.25	
Ti	5.84	0.030	3.062	9.66	
W	2.91	0.104	10.485	4.19	
U	7.84	5.395	544.92	9.28	
V	7.13	0.037	3.750	24.43	
Zn	6.64	0.013	1.265	9.12	
Zr	6.70	0.100	10.138	8.05	

Dilution factor : 101.000

ICP Analysis

May 14, 1990

Sample 9000B2

Sample name : F1229
 Sample code 1 : SAMPLE
 Sample code 2 : 21
 Sample code 3 : 9000B2
 Programme : SST

14-May-90 13:35:41

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	3.26	0.947	19.885	6.02	
Sb	0.63	0.182	3.826	19.51	
As	2.00	-0.002	-0.039	-725.82	
Ba	5.71	0.012	0.251	28.14	
Be	1.19	0.001	0.014	74.41	
Bi	8.08	-0.032	-0.670	-146.15	
H	7.33	0.006	0.126	141.65	
Cd	4.43	-0.004	-0.075	-49.95	
Ca	56.11	2.267	47.615	0.68	
Ce	7.61	-0.074	-1.564	-158.45	
Cr	2.09	-0.011	-0.227	-38.35	
Co	0.22	0.074	1.554	47.03	
Cu	4.17	-0.011	-0.234	-70.98	
Eu	5.69	-0.003	-0.062	-76.86	
Fe	23.72	2.650	55.654	0.66	
La	0.43	0.012	0.251	25.00	
Pb	0.36	0.127	2.664	35.12	
Li	5.18	-0.007	-0.137	-74.60	
Mg	18.85	0.602	12.646	0.51	
Mn	3.59	0.124	2.601	0.25	
Hg	8.66	0.045	0.950	7.55	
Mo	3.58	0.001	0.025	262.72	
Nd	7.67	-0.106	-2.224	-53.71	
Ni	6.88	-0.002	-0.046	-290.50	
P	2.17	0.058	1.223	31.88	
K	4.08	-0.017	-0.351	-955.24	
Sm	6.86	-0.166	-3.488	-79.08	
Se	3.21	0.030	0.629	108.30	
Si	5.48	0.310	6.520	16.51	
Ag	22.60	-0.014	-0.291	-70.71	
Na	9.71	1.700	35.708	3.53	
Sr	6.37	0.046	0.968	2.59	
S	1.47	0.319	6.696	7.49	
Ta	6.08	-0.015	-0.324	-98.14	
Tl	6.81	-0.152	-3.190	-72.27	
Th	1.45	-0.059	-1.233	-191.41	
Sn	2.58	0.019	0.392	27.33	
Ti	5.57	0.006	0.127	66.44	
W	2.73	0.011	0.229	217.30	
U	7.20	-1.432	-30.08	-56.18	
V	6.62	-0.014	-0.289	-25.75	
Zn	6.71	0.014	0.294	17.84	
Zr	6.26	-0.007	-0.140	-203.07	

Dilution factor : 21.0000

Sample name : F1230
 Sample code 1 : DUPSAM
 Sample code 2 : 101
 Sample code 3 : 9000B2
 Programme : SST 14-May-90 13:39:52

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	2.86	-0.016	-1.597	-215.47	
Sb	0.62	0.034	3.408	105.36	
As	1.93	-0.039	-3.913	-21.34	
Ba	5.30	-0.011	-1.126	-11.65	
Be	1.15	-0.001	-0.100	-18.41	
Bi	7.85	-0.195	-19.72	-27.93	
B	7.08	-0.012	-1.243	-22.56	
Cd	4.32	-0.007	-0.731	-12.73	
Ca	12.81	0.497	50.215	1.22	
Cr	7.37	-0.404	-40.85	-10.38	
Co	2.02	(-0.024	(-2.411	-12.79	
Co	0.22	-0.006	-0.650	-312.24	
Cu	4.08	-0.029	-2.928	-11.51	
Eu	5.51	-0.010	-0.964	-8.44	
Fe	7.77	0.614	62.055	1.87	
La	0.41	-0.030	-3.019	-45.83	
Pb	0.35	0.008	0.854	312.22	
Li	5.04	-0.022	-2.247	-8.34	
Mg	4.59	0.124	12.532	1.39	
Mn	1.75	0.026	2.595	2.85	
Hg	8.87	0.053	5.402	1.81	
Mo	3.49	-0.010	-1.003	-44.56	
Nd	7.38	(-0.409	(-41.35	-2.78	
Ni	6.73	-0.014	-1.459	-31.07	
P	2.01	-0.031	-3.156	-60.48	
K	3.95	-0.538	-54.30	-9.84	
Sm	6.65	-0.531	-53.68	-8.66	
Se	3.11	-0.099	-9.966	-39.17	
Si	4.89	-0.015	-1.484	-82.28	
Ag	21.93	-0.039	-3.965	-9.46	
Na	7.77	0.135	13.594	17.42	
Sr	5.07	0.005	0.530	9.60	
S	1.17	0.031	3.163	22.57	
Ta	5.88	-0.067	-6.755	-18.22	
Tl	6.60	-0.613	-61.88	-18.49	
Th	1.40	-0.324	-32.71	-5.73	
Sn	2.46	-0.011	-1.146	-13.33	
Ti	5.34	-0.015	-1.492	-11.34	
W	2.63	-0.040	-3.994	-27.13	
U	6.99	-3.678	-371.5	-7.81	
V	6.46	-0.030	-2.992	-19.88	
Zn	6.12	-0.000	-0.016	-816.15	
Zr	6.11	-0.043	-4.385	-11.02	

Dilution factor : 101.000

Sample name : F1230
 Sample code 1 : DUPSAM
 Sample code 2 : 21
 Sample code 3 : 9000B2
 Programme : SST 14-May-90 13:44:27

NAME	MV	INI	CONCEN	DILCOR	RSD
Al	3.30	1.038	21.794	7.77	
Sb	0.63	0.155	3.260	33.47	
As	2.02	0.010	0.216	127.04	
Ba	5.84	0.019	0.406	22.61	
Be	1.20	0.001	0.027	55.75	
Bi	8.34	0.090	1.894	74.89	
B	7.41	0.012	0.260	46.40	
Cd	4.51	-0.001	-0.013	-342.87	
Ca	54.50	2.202	46.238	0.66	
Ce	7.78	0.170	3.570	86.32	
Cr	2.12	-0.004	-0.084	-88.05	
Co	0.22	0.061	1.284	39.74	
Cu	4.28	0.008	0.173	124.55	
Eu	5.84	0.003	0.053	113.24	
Fe	20.49	2.621	55.031	0.44	
La	0.43	0.023	0.481	65.65	
Pb	0.36	0.097	2.042	39.85	
Li	5.31	0.007	0.153	125.64	
Mg	18.58	0.593	12.455	0.41	
Mn	3.58	0.123	2.593	0.56	
Hg	8.69	0.046	0.972	0.22	
Mo	3.63	0.006	0.135	67.02	
Nd	7.83	0.067	1.410	221.23	
Ni	7.06	0.012	0.261	73.71	
P	2.26	0.112	2.344	30.79	
K	4.15	0.267	5.615	74.29	
Sm	7.03	0.153	3.223	119.63	
Se	3.24	0.071	1.497	67.60	
Si	5.43	0.279	5.865	12.78	
Ag	23.21	0.010	0.205	134.38	
Na	9.88	1.835	38.545	4.23	
Sr	6.43	0.048	1.009	3.39	
S	1.47	0.323	6.784	5.11	
Ta	6.22	0.022	0.469	111.65	
Tl	7.05	0.359	7.549	56.37	
Th	1.48	0.121	2.551	101.49	
Sn	2.61	0.024	0.503	36.87	
Ti	5.64	0.012	0.249	48.05	
W	2.75	0.023	0.483	105.23	
U	7.38	0.493	10.347	219.97	
V	6.85	0.009	0.191	74.48	
Zn	6.87	0.018	0.377	10.90	
Zr	6.39	0.025	0.520	71.86	

Dilution factor : 21.0000

Sample name : F1231
 Sample code 1 : SPIKE
 Sample code 2 : 101
 Sample code 3 : 9000B2
 Programme : SST 14-May-90 13:50:12

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	3.50	1.518	153.27	4.79	
Sb	0.65	0.398	40.215	7.34	
As	2.21	0.115	11.629	12.61	
Ba	6.05	0.031	3.152	11.77	
Be	1.48	0.012	1.213	4.28	
Bi	8.62	0.369	37.241	16.58	
Br	7.70	0.033	3.336	9.43	
Cd	4.93	0.014	1.398	14.86	
Ca	12.18	0.472	47.631	0.77	
Ce	8.13	0.639	64.531	19.51	
Cr	2.28	0.025	2.486	10.77	
Co	0.23	0.138	13.976	4.03	
Cu	4.50	0.048	4.849	16.83	
Eu	6.35	0.021	2.115	10.27	
Fe	9.62	0.851	85.933	0.36	
La	0.46	0.102	10.266	8.82	
Pb	0.37	0.296	29.897	4.29	
Li	5.60	0.038	3.882	14.31	
Hg	10.05	0.307	31.038	0.63	
Mn	2.01	0.040	4.007	1.22	
Hg	9.09	0.062	6.264	1.60	
Mo	4.14	0.067	6.790	2.79	
Nd	8.12	0.360	36.386	13.42	
Ni	7.38	0.039	3.903	12.37	
P	2.46	0.221	22.338	14.12	
K	4.28	0.826	83.412	12.77	
Sm	7.34	0.711	71.789	20.46	
Se	3.42	0.304	30.750	12.39	
Si	5.63	0.391	39.445	4.40	
Ag	24.41	0.056	5.640	20.51	
Na	8.53	0.749	75.686	10.30	
Sr	5.79	0.028	2.817	4.73	
S	1.34	0.198	19.976	10.96	
Ta	6.48	0.090	9.065	15.84	
Tl	7.41	1.118	112.88	6.37	
Ih	1.55	0.557	56.222	20.01	
Sn	2.88	0.093	9.350	8.05	
Ti	6.12	0.054	5.501	7.80	
W	2.86	0.081	8.178	13.05	
U	7.71	3.935	397.40	23.95	
V	7.19	0.043	4.388	21.48	
Zn	6.96	0.020	2.036	5.09	
Zr	6.80	0.126	12.695	10.49	

Dilution factor : 101.000

ICP Analysis

May 14, 1990

Spike of 9000B2

Sample name : F1231
 Sample code 1 : SPIKE
 Sample code 2 : 21
 Sample code 3 : 9000B2
 Programme : SST 14-May-90 13:54:32

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	5.17	5.470	114.88	1.82	
Sb	0.65	0.381	8.007	7.02	
As	2.51	0.280	5.889	9.19	
Ba	6.72	0.069	1.447	6.00	
Be	2.33	0.045	0.937	0.33	
Bi	8.68	0.411	8.639	10.31	
B	7.99	0.054	1.142	16.89	
Cd	5.83	0.045	0.949	4.48	
Ca	52.98	2.139	44.928	0.65	
Ce	7.93	0.370	7.764	41.59	
Cr	2.44	0.055	1.159	10.31	
Co	0.23	0.148	3.109	3.77	
Cu	4.58	0.063	1.329	16.01	
Eu	7.08	0.048	0.998	6.07	
Fe	31.31	3.618	75.972	0.86	
La	0.51	0.246	5.169	4.91	
Pb	0.38	0.448	9.413	7.49	
Li	5.76	0.055	1.151	13.85	
Mg	38.33	1.256	26.367	0.69	
Mn	4.38	0.166	3.489	0.62	
Hg	10.64	0.122	2.561	5.28	
Mo	5.49	0.226	4.753	2.15	
Nd	8.01	0.252	5.283	67.93	
Ni	7.74	0.067	1.414	8.40	
P	2.68	0.346	7.266	8.94	
K	4.23	0.602	12.634	31.92	
Sm	7.15	0.365	7.659	47.71	
Se	3.51	0.417	8.749	9.65	
Si	6.82	1.045	21.940	2.79	
Ag	24.71	0.067	1.415	19.05	
Na	10.06	1.975	41.467	4.22	
Sr	7.91	0.094	1.983	2.15	
S	1.73	0.571	11.984	3.14	
Ta	6.41	0.070	1.479	28.15	
Tl	7.15	0.573	12.042	41.89	
Th	1.54	0.500	10.500	23.44	
Sn	3.56	0.266	5.580	3.39	
Ti	7.33	0.163	3.423	3.40	
W	2.91	0.102	2.144	14.27	
U	7.50	1.788	37.545	60.84	
V	7.27	0.051	1.074	17.91	
Zn	8.79	0.065	1.360	2.51	
Zr	7.36	0.261	5.478	6.34	

Dilution factor : 21.0000

Sample name : F1232
 Sample code 1 : DIGSTD
 Sample code 2 : DIRECT
 Sample code 3 : 9000B2
 Programme : SST 14-May-90 13:58:47

NAME	MV	INT	CONCEN	RSD
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ICP Analysis

May 14, 1990

Acid Digested Check Standard

Sample name : F1232
Sample code 1 : DIGSTD
Sample code 2 : DIRECT
Sample code 3 : 9000E2
Programme : SST 14-May-90 13:58:47

NAME	MV	INT	CONCEN	RSD
Al	5.11	5.323	0.50	
Sn	0.73	1.205	1.28	
As	11.64	5.311	0.91	
Ba	22.20	0.941	0.71	
Be	25.51	0.940	1.49	
Bi	14.92	4.973	0.71	
B	20.16	0.946	0.28	
Cd	30.62	0.907	0.86	
Ca	38.72	1.556	1.16	
Ce	7.99	0.456	13.36	
Cr	6.75	0.855	0.90	
Co	0.32	0.959	3.81	
Cu	9.48	0.963	0.34	
Eu	30.99	0.919	0.70	
Fe	12.32	1.195	0.66	
La	1.90	4.423	0.72	
Pb	0.74	4.986	1.53	
Li	13.28	0.859	0.49	
Mg	33.74	1.102	0.84	
Mn	19.19	0.955	0.70	
Hg	63.75	2.188	0.78	
Mo	43.49	4.702	1.19	
Nd	8.20	0.451	23.53	
Ni	18.78	0.960	0.81	
P	9.43	4.112	0.75	
K	4.47	1.610	4.87	
Sm	7.12	0.312	26.06	
Se	7.11	4.962	0.75	
Si	7.20	1.256	0.54	
Ag	49.08	1.002	0.47	
Na	10.45	2.292	0.92	
Br	36.13	0.977	0.84	
S	5.96	4.629	1.30	
Ta	20.05	3.603	2.29	
Tl	9.12	4.771	1.42	
Th	2.25	4.846	0.90	
Sn	21.09	4.686	0.96	
Ti	61.45	4.979	0.79	
W	6.25	1.811	1.76	
U	7.56	2.432	18.03	
V	16.16	0.938	0.26	
Zn	45.24	0.952	0.68	
Zr	26.00	4.800	0.69	

Sample name : F1205
 Sample code 1 : SAMPLE
 Sample code 2 : 101
 Sample code 3 : S000B1
 Programme : SST 14-May-90 14:03:33

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	2.90	0.092	9.340	138.59	
Sb	0.63	0.159	16.018	31.92	
As	2.00	-0.003	-0.278	-765.64	
Ba	5.46	-0.002	-0.171	-378.44	
Be	1.17	0.000	0.013	564.71	
Bi	8.18	0.041	4.135	177.46	
B	7.27	0.002	0.222	259.53	
Cd	4.43	-0.003	-0.346	-50.49	
Ca	7.31	0.272	27.500	0.83	
Ce	7.63	-0.036	-3.647	-610.00	
Cr	2.08	-0.012	-1.206	-75.15	
Co	0.22	0.016	1.625	120.00	
Cu	4.20	-0.007	-0.667	-211.33	
Eu	5.73	-0.002	-0.157	-296.83	
Fe	4.97	0.257	25.962	0.46	
La	0.42	-0.003	-0.302	-556.80	
Pb	0.35	0.055	5.552	46.15	
Li	5.21	-0.003	-0.331	-323.49	
Mg	2.86	0.066	6.656	0.89	
Mn	1.56	0.016	1.575	7.68	
Hg	7.49	-0.001	-0.052	-405.70	
Mo	3.64	0.008	0.769	48.27	
Nd	7.62	-0.156	-15.76	-161.43	
Ni	6.95	0.004	0.359	253.45	
P	2.10	0.019	1.916	239.02	
K	4.06	-0.099	-9.987	-268.64	
Sm	6.90	-0.082	-8.328	-309.18	
Se	3.19	0.013	1.320	526.99	
Si	5.00	0.046	4.599	97.99	
A3	22.75	-0.008	-0.806	-226.13	
Na	7.82	0.175	17.656	71.19	
Sr	5.07	0.005	0.533	50.69	
S	1.17	0.036	3.679	68.44	
Ta	6.12	-0.004	-0.366	-921.62	
Tl	6.92	0.063	6.411	339.05	
Ih	1.45	-0.008	-0.818	-2027.1	
.Sn	2.56	0.011	1.146	109.16	
Ti	5.49	-0.001	-0.138	-570.92	
W	2.74	0.018	1.859	46.26	
U	7.24	-1.042	-105.2	-151.03	
V	6.76	0.000	0.017	7532.08	
Zn	6.41	0.007	0.680	31.80	
Zr	6.29	0.000	0.033	7838.77	

Dilution factor : 101.000

Sample name : F1205
 Sample code 1 : SAMPLE
 Sample code 2 : 21
 Sample code 3 : 9000B1
 Programme : SST 14-May-90 14:07:51

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	3.19	0.783	16.449	4.85	
Sb	0.65	0.307	6.448	1.90	
As	2.10	0.051	1.068	18.79	
Ba	5.88	0.022	0.459	10.30	
Be	1.24	0.003	0.054	14.19	
Bi	8.46	0.247	5.184	29.33	
B	7.61	0.027	0.559	21.28	
Cd	4.62	0.003	0.065	35.74	
Ca	31.00	1.241	26.063	0.49	
Ce	8.03	0.500	10.509	15.36	
Cr	2.15	0.002	0.038	68.88	
Co	0.23	0.100	2.095	24.35	
Cu	4.40	0.030	0.620	13.83	
Eu	6.02	0.009	0.189	17.51	
Fe	14.25	1.441	30.254	0.95	
La	0.44	0.036	0.753	30.05	
Pb	0.36	0.169	3.552	0.00	
Li	5.47	0.024	0.501	14.43	
Mg	11.02	0.340	7.133	0.47	
Mn	2.66	0.074	1.558	1.29	
Hg	7.74	0.009	0.197	27.98	
Mo	3.70	0.015	0.321	9.33	
Nd	8.01	0.246	5.174	43.18	
Ni	7.23	0.026	0.554	10.67	
P	2.32	0.145	3.043	11.01	
K	4.23	0.629	13.219	20.58	
Sm	7.25	0.540	11.350	16.40	
Se	3.33	0.188	3.941	11.49	
Si	5.59	0.369	7.754	4.19	
Ag	23.87	0.035	0.738	17.64	
Na	9.24	1.319	27.701	3.30	
Sr	5.93	0.032	0.678	2.67	
S	1.37	0.227	4.757	5.55	
Ta	6.38	0.063	1.327	16.07	
Tl	7.24	0.751	15.772	18.32	
Th	1.52	0.387	8.119	16.50	
Sn	2.64	0.033	0.692	32.84	
Ti	5.77	0.024	0.499	11.99	
W	2.83	0.065	1.357	21.55	
U	7.60	2.858	60.013	18.53	
V	7.03	0.027	0.574	17.70	
Zn	6.68	0.013	0.282	4.24	
Zr	6.54	0.063	1.321	12.20	

Dilution factor : 21.0000

ICP Analysis

May 14, 1990

Sample Duplicate 9000B1

Sample name : F1206
 Sample code 1 : DUPSAM
 Sample code 2 : 101
 Sample code 3 : 9000B1
 Programme : SST 14-May-90 14:11:51

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	3.11	0.583	58.835	11.02	
Sb	0.66	0.435	43.963	15.48	
As	2.11	0.060	6.046	35.64	
Ba	5.88	0.022	2.197	9.49	
Be	1.25	0.003	0.322	9.90	
Bi	8.61	0.360	36.355	5.49	
B	7.72	0.035	3.516	14.21	
Cd	4.69	0.006	0.556	12.25	
Ca	7.57	0.283	28.564	0.45	
Ce	8.21	0.753	76.025	10.26	
Cr	2.21	0.011	1.137	18.75	
Co	0.23	0.161	16.251	6.00	
Cu	4.48	0.046	4.596	11.20	
Eu	6.16	0.014	1.424	10.69	
Fe	5.26	0.295	29.751	0.75	
La	0.45	0.063	6.341	8.25	
Pb	0.37	0.249	25.199	17.86	
Li	5.58	0.036	3.655	10.73	
Mg	3.03	0.072	7.245	0.43	
Mn	1.64	0.020	2.001	1.21	
Hg	7.95	0.017	1.750	14.94	
Mo	3.74	0.020	2.027	11.32	
Nd	8.19	0.436	44.041	20.54	
Ni	7.29	0.031	3.117	7.19	
P	2.31	0.138	13.959	6.96	
K	4.29	0.877	88.616	13.59	
Sm	7.42	0.848	85.648	10.33	
Se	3.40	0.273	27.556	16.23	
Si	5.29	0.203	20.548	7.18	
Ag	24.43	0.057	5.713	11.75	
Na	8.40	0.647	65.342	8.44	
Sr	5.39	0.015	1.565	6.18	
S	1.27	0.132	13.328	10.31	
Ta	6.54	0.105	10.581	5.64	
Tl	7.44	1.178	118.93	5.15	
Th	1.55	0.591	59.698	10.99	
Sn	2.69	0.046	4.671	13.64	
Ti	5.80	0.026	2.649	9.82	
W	2.89	0.096	9.659	13.25	
U	7.79	4.769	481.65	13.17	
V	7.16	0.040	4.079	4.43	
Zn	6.62	0.012	1.196	10.29	
Zr	6.66	0.092	9.253	9.75	

Dilution factor : 101.000

ICP Analysis

May 14, 1990

Sample Duplicate 9000B1

Sample name : F1206
 Sample code 1 : DUPSAM
 Sample code 2 : 21
 Sample code 3 : 9000B1
 Programme : SST 14-May-90 14:16:08

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	3.24	0.895	18.789	15.96	
Sb	0.64	0.280	5.881	25.04	
As	2.05	0.028	0.598	107.46	
Ba	5.80	0.017	0.361	43.32	
Be	1.21	0.001	0.029	11.78	
Bi	8.34	0.164	3.444	62.22	
B	7.49	0.018	0.372	67.01	
Cd	4.55	0.000	0.010	675.06	
Ca	34.64	1.390	29.181	1.59	
Ce	7.89	0.308	6.478	86.21	
Cr	2.15	0.001	0.023	675.06	
Co	0.23	0.103	2.163	24.80	
Cu	4.34	0.018	0.385	99.81	
Eu	5.92	0.005	0.110	98.00	
Fe	15.52	1.603	33.666	0.64	
La	0.44	0.035	0.732	60.81	
Pb	0.37	0.207	4.351	24.49	
Li	5.37	0.014	0.285	93.72	
Mg	12.81	0.400	8.398	1.30	
Mn	2.76	0.080	1.675	0.20	
Hg	7.48	-0.001	-0.013	-1116.7	
Mo	3.65	0.009	0.187	81.83	
Nd	7.89	0.127	2.667	149.36	
Ni	7.03	0.010	0.220	129.60	
P	2.23	0.095	2.004	39.23	
K	4.18	0.408	8.569	75.54	
Sm	7.12	0.315	6.610	98.55	
Se	3.31	0.165	3.462	39.38	
Si	5.37	0.250	5.248	23.85	
Ag	23.47	0.020	0.413	108.25	
Na	9.23	1.314	27.589	9.27	
Sr	5.94	0.033	0.688	8.83	
S	1.38	0.240	5.046	12.90	
Ta	6.31	0.045	0.942	69.71	
Tl	7.02	0.292	6.141	91.12	
Ih	1.50	0.261	5.484	72.32	
Sn	2.62	0.027	0.558	45.98	
Ti	5.69	0.016	0.340	61.09	
W	2.79	0.046	0.956	74.00	
U	7.48	1.492	31.337	129.86	
V	6.80	0.005	0.101	264.09	
Zn	6.75	0.015	0.318	17.56	
Zr	6.46	0.043	0.908	69.96	

Dilution factor : 21.0000

Sample name : F432
 Sample code 1 : SAMPLE
 Sample code 2 : 101
 Sample code 3 : 89070
 Programme : SST 14-May-90 14:20:21

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	6.88	9.532	962.76	0.62	
Sb	0.63	0.165	16.699	15.41	
As	2.00	-0.003	-0.260	-241.50	
Ba	5.54	0.003	0.275	26.92	
Be	1.17	-0.000	-0.000	*****	
Bi	8.98	0.628	63.405	2.62	
B	7.31	0.005	0.501	69.51	
Cd	4.44	-0.003	-0.318	-11.79	
Ca	2.64	0.081	8.200	0.41	
Ce	7.59	-0.098	-9.924	-20.12	
Cr	2.55	0.075	7.540	2.17	
Co	0.22	0.029	2.925	19.24	
Cu	4.22	-0.002	-0.235	-85.14	
Eu	5.69	-0.003	-0.310	-16.66	
Fe	17.78	1.892	191.08	0.82	
La	0.43	0.003	0.302	200.00	
Pb	0.36	0.135	13.667	23.59	
Li	5.16	-0.008	-0.857	-13.94	
Mg	6.32	0.182	18.394	0.50	
Mn	17.27	0.852	86.082	0.47	
Hg	7.69	0.007	0.740	37.94	
Mo	3.58	0.001	0.099	301.88	
Nd	7.60	-0.174	-17.58	-22.59	
Ni	7.14	0.019	1.892	4.98	
P	2.18	0.067	6.745	5.37	
K	4.01	-0.306	-30.95	-11.16	
Sm	6.85	-0.171	-17.26	-19.60	
Se	3.25	0.083	8.433	19.07	
Si	5.34	0.230	23.181	4.09	
Ag	22.72	-0.009	-0.933	-31.69	
Na	16.45	7.119	718.98	0.54	
Sr	8.55	0.114	11.559	0.50	
S	1.19	0.055	5.563	14.02	
Ta	6.07	-0.018	-1.804	-28.63	
Tl	6.90	0.025	2.521	390.30	
Th	1.45	-0.057	-5.724	-37.63	
Sn	2.57	0.015	1.529	6.01	
Ti	5.57	0.006	0.620	18.69	
W	2.72	0.009	0.930	83.58	
U	7.42	0.859	86.731	21.66	
V	6.71	-0.005	-0.463	-113.51	
Zn	6.94	0.020	2.001	0.89	
Zr	6.32	0.008	0.852	35.83	

Dilution factor : 101.000

Sample name : F432
Sample code 1 : SAMPLE
Sample code 2 : 21
Sample code 3 : 89070
Programme : SST 14-May-90 14:24:09

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	21.96	45.290	951.09	2.41	
Sb	0.64	0.280	5.881	14.46	
As	2.08	0.044	0.918	13.87	
Ba	6.20	0.040	0.836	7.42	
Be	1.21	0.001	0.028	32.08	
Bi	12.44	3.161	66.377	1.24	
B	7.68	0.032	0.665	4.29	
Cd	4.53	-0.000	-0.002	-1650.8	
Ca	9.68	0.369	7.757	1.81	
Ce	7.75	0.117	2.457	110.51	
Cr	4.35	0.408	8.576	1.26	
Co	0.22	0.016	0.338	0.00	
Cu	4.47	0.043	0.899	16.64	
Eu	5.83	0.002	0.040	135.79	
Fe	72.61	8.889	186.66	1.71	
La	0.43	0.018	0.377	50.00	
Pb	0.38	0.347	7.282	3.66	
Li	5.26	0.001	0.028	523.70	
Mg	26.61	0.863	18.114	1.63	
Mn	74.34	3.893	81.752	1.85	
Hg	8.24	0.029	0.601	20.96	
Mo	3.67	0.011	0.235	11.64	
Nd	7.77	0.004	0.094	2967.27	
Ni	8.30	0.113	2.375	2.31	
P	2.56	0.278	5.836	15.73	
K	4.08	0.001	0.029	13285.6	
Sm	7.01	0.108	2.375	142.08	
Se	3.46	0.352	7.385	5.60	
Si	7.31	1.317	27.662	3.06	
Ag	23.53	0.022	0.464	42.30	
Na	48.71	33.070	694.47	1.39	
Sr	21.85	0.531	11.141	1.41	
S	1.41	0.268	5.623	8.34	
Ta	6.19	0.014	0.294	131.75	
Tl	7.44	1.183	24.833	17.37	
Th	1.48	0.142	2.976	68.62	
Sn	2.65	0.035	0.731	25.27	
Ti	6.12	0.054	1.144	6.05	
W	2.81	0.054	1.124	22.25	
U	8.36	10.808	226.97	6.89	
V	7.22	0.047	0.982	10.04	
Zn	9.12	0.073	1.525	1.20	
Zr	6.70	0.101	2.116	13.01	

Dilution factor : 21.0000

Sample name : E433
Sample code 1 : DUPSAM
Sample code 2 : 101
Sample code 3 : 89070
Programme : SST 14-May-90 14:28:27

NAME	MV	INI	CONCEN	DILCOR	RSD
Al	7.56	11.142	1125.4	0.58	
Sb	0.65	0.321	32.376	9.47	
As	2.07	0.039	3.932	30.49	
Ba	5.87	0.021	2.163	12.87	
Be	1.23	0.002	0.235	15.40	
Bi	9.37	0.916	92.499	3.41	
B	7.61	0.027	2.708	13.16	
Cd	4.62	0.003	0.312	57.10	
Ca	2.76	0.086	8.717	1.02	
Ce	8.04	0.522	52.714	20.34	
Cr	2.65	0.093	9.415	2.30	
Co	0.23	0.084	8.451	30.53	
Cu	4.45	0.040	3.997	16.70	
Eu	6.04	0.010	0.990	19.35	
Fe	28.20	3.221	325.30	1.06	
La	0.44	0.042	4.227	18.90	
Pb	0.37	0.241	24.345	13.25	
Li	5.47	0.024	2.434	16.80	
Mg	6.33	0.182	18.418	1.10	
Mn	16.66	0.820	82.809	1.15	
Hg	7.76	0.010	1.028	8.06	
Mo	3.71	0.017	1.709	25.54	
Nd	8.01	0.251	25.341	46.42	
Ni	7.47	0.046	4.646	8.25	
P	2.36	0.168	16.946	4.75	
K	4.22	0.578	58.374	16.68	
Sm	7.27	0.589	59.449	20.48	
Se	3.36	0.225	22.743	18.27	
Si	5.60	0.374	37.813	4.91	
Ag	24.06	0.042	4.267	19.47	
Na	17.09	7.634	771.03	0.40	
Sr	8.82	0.123	12.397	0.36	
S	1.25	0.114	11.488	8.27	
Ta	6.41	0.070	7.086	24.73	
Tl	7.34	0.982	99.194	18.45	
Th	1.52	0.417	42.116	18.78	
Sn	2.65	0.034	3.465	18.43	
Ti	5.82	0.028	2.810	10.78	
W	2.82	0.058	5.854	25.25	
U	7.85	5.452	550.61	12.82	
V	7.11	0.035	3.542	18.38	
Zn	7.32	0.029	2.929	5.50	
Zr	6.63	0.084	8.466	14.27	

Dilution factor : 101.000

Sample name : F433
 Sample code 1 : DUPSAM
 Sample code 2 : 21
 Sample code 3 : 89070
 Programme : SST 14-May-90 14:33:36

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	24.89	52.232	1096.9	1.41	
Sb	0.68	0.614	12.896	4.36	
As	2.20	0.111	2.337	10.98	
Ba	6.62	0.063	1.329	2.14	
Be	1.29	0.005	0.100	9.80	
Bi	13.03	3.589	75.359	0.85	
B	8.04	0.059	1.229	6.75	
Cd	4.83	0.011	0.221	6.28	
Ca	10.42	0.400	8.391	1.53	
Ce	8.31	0.889	18.677	7.67	
Cr	4.57	0.450	9.451	1.30	
Co	0.24	0.206	4.325	30.14	
Cu	4.76	0.097	2.042	3.61	
Eu	6.27	0.018	0.376	8.75	
Fe	125.08	15.585	327.28	1.59	
La	0.45	0.087	1.821	5.97	
Pb	0.40	0.655	13.764	1.12	
Li	5.63	0.041	0.860	8.45	
Mg	27.77	0.901	18.930	1.44	
Mn	74.17	3.884	81.561	1.66	
Hg	8.04	0.021	0.442	2.88	
Mo	3.88	0.036	0.761	4.55	
Nd	8.30	0.546	11.475	5.28	
Ni	8.69	0.145	3.036	1.97	
P	2.82	0.422	8.871	8.13	
K	4.33	1.024	21.496	8.33	
Sm	7.51	1.011	21.233	7.03	
Se	3.69	0.638	13.398	3.04	
Si	7.51	1.429	30.006	0.68	
Ag	25.21	0.086	1.816	5.67	
Na	51.79	35.546	746.46	1.23	
Sr	22.87	0.563	11.814	1.28	
S	1.53	0.378	7.938	0.88	
Ta	6.68	0.141	2.967	6.06	
Tl	7.91	2.190	45.997	11.11	
Th	1.58	0.739	15.516	4.22	
Sn	2.82	0.078	1.646	7.95	
Ti	6.49	0.088	1.848	1.12	
W	2.98	0.141	2.964	8.89	
U	8.91	16.633	349.29	1.75	
V	7.59	0.084	1.754	10.56	
Zn	10.52	0.107	2.244	1.22	
Zr	7.08	0.193	4.056	2.08	

Dilution factor : 21.0000

Sample name : F552
 Sample code 1 : SAMPLE
 Sample code 2 : 101
 Sample code 3 : 89075
 Programme : SST 14-May-90 14:37:39

NAME	MV	INT	CONCEN	DILCOR	RSD
A1	6.92	9.626	972.26	0.34	
Sb	0.63	0.189	19.085	33.46	
As	2.03	0.015	1.558	63.52	
Ba	5.59	0.006	0.574	51.90	
Be	1.18	0.001	0.052	70.89	
Bi	10.08	1.431	144.56	3.78	
B	7.23	-0.001	-0.106	-494.93	
Cd	4.46	-0.002	-0.243	-67.70	
Ca	2.34	0.069	6.995	0.84	
Ce	7.69	0.037	3.739	265.91	
Cr	2.75	0.113	11.364	4.16	
Co	0.22	0.064	6.500	39.69	
Cu	4.25	0.004	0.364	179.09	
Eu	5.77	-0.000	-0.011	-2082.0	
Fe	14.05	1.416	142.98	0.52	
La	0.43	0.017	1.711	50.94	
Pb	0.36	0.161	16.230	18.23	
Li	5.24	-0.001	-0.054	-985.53	
Mg	1.19	0.010	1.031	1.15	
Mn	20.58	1.029	103.93	0.38	
Hg	7.33	-0.006	-0.654	-35.60	
Mo	3.61	0.005	0.456	105.68	
Nd	7.70	-0.074	-7.445	-180.72	
Ni	7.15	0.020	2.001	19.56	
P	2.49	0.238	24.085	12.48	
K	4.06	-0.077	-7.737	-174.80	
Sm	6.94	-0.010	-0.973	-1146.6	
Se	3.29	0.136	13.757	35.29	
Si	5.30	0.211	21.271	7.94	
Ag	22.92	-0.001	-0.142	-467.28	
Na	17.31	7.812	789.03	0.25	
Sr	7.92	0.095	9.550	0.64	
S	1.22	0.079	7.939	9.93	
Ta	6.14	0.000	0.009	10901.1	
Tl	6.90	0.027	2.737	480.24	
Th	1.46	0.022	2.249	319.59	
Sn	2.57	0.014	1.435	31.02	
Ti	5.51	0.001	0.069	586.67	
W	2.74	0.017	1.704	90.77	
U	7.39	0.574	57.940	113.79	
V	6.72	-0.003	-0.312	-116.50	
Zn	6.63	0.012	1.240	11.25	
Zr	6.31	0.007	0.697	163.96	

Dilution factor : 101.000

Sample name : F552
 Sample code 1 : SAMPLE
 Sample code 2 : 21
 Sample code 3 : 89075
 Programme : SST 14-May-90 14:41:45

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	21.83	44.972	944.42	0.59	
Sb	0.63	0.142	2.976	17.98	
As	2.02	0.007	0.154	52.50	
Ba	5.94	0.025	0.527	7.97	
Be	1.17	-0.000	-0.002	-175.58	
Bi	17.00	6.494	136.37	0.88	
B	7.17	-0.005	-0.111	-54.69	
Cd	4.39	-0.005	-0.101	-24.67	
Ca	8.64	0.327	6.859	0.46	
Ce	7.48	-0.250	-5.259	-23.73	
Cr	5.23	0.572	12.020	1.12	
Co	0.22	-0.010	-0.203	-57.73	
Cu	4.26	0.005	0.107	62.85	
Eu	5.63	-0.005	-0.114	-23.60	
Fe	56.42	6.822	143.27	0.81	
La	0.42	-0.005	-0.105	-34.64	
Pb	0.36	0.186	3.907	17.16	
Li	5.08	-0.018	-0.374	-18.53	
Mg	3.34	0.082	1.724	0.71	
Mn	91.89	4.828	101.38	0.47	
Hg	7.24	-0.010	-0.216	-33.29	
Mo	3.58	0.001	0.021	263.69	
Nd	7.52	-0.256	-5.371	-37.93	
Ni	8.04	0.091	1.920	3.11	
P	3.58	0.849	17.820	7.16	
K	3.98	-0.437	-9.183	-31.20	
Sn	6.75	-0.356	-7.482	-19.54	
Se	3.41	0.286	6.004	9.49	
Si	6.55	0.897	18.847	2.62	
Ag	22.48	-0.018	-0.381	-32.83	
Na	53.01	36.525	767.03	0.49	
Sr	18.99	0.441	9.260	0.57	
S	1.47	0.322	6.757	5.25	
Ta	5.99	-0.039	-0.810	-38.20	
Tl	6.94	0.119	2.501	34.97	
Th	1.42	-0.194	-4.081	-16.54	
Sn	2.57	0.016	0.330	49.19	
Ti	5.48	-0.002	-0.039	-153.80	
W	2.74	0.016	0.336	84.98	
U	7.57	2.513	52.770	17.07	
V	6.76	0.001	0.015	518.15	
Zn	7.72	0.039	0.813	2.72	
Zr	6.19	-0.024	-0.496	-31.59	

Dilution factor : 21.0000

Sample name : F553
 Sample code 1 : DUPSAM
 Sample code 2 : 101
 Sample code 3 : 89075
 Programme : SST 14-May-90 14:46:18

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	6.88	9.534	962.92	0.32	
Sb	0.63	0.172	17.381	44.54	
As	2.02	0.011	1.094	142.22	
Ba	5.66	0.009	0.953	30.04	
Be	1.19	0.001	0.084	24.42	
Bi	9.94	1.332	134.54	4.88	
B	7.35	0.008	0.804	36.95	
Cd	4.50	-0.001	-0.109	-79.17	
Ca	5.99	0.218	22.050	0.66	
Ce	7.79	0.174	17.541	63.75	
Cr	2.76	0.115	11.582	3.18	
Co	0.22	0.055	5.525	17.65	
Cu	4.30	0.013	1.291	57.01	
Eu	5.85	0.003	0.278	65.71	
Fe	11.77	1.125	113.61	1.06	
La	0.43	0.013	1.308	96.08	
Pb	0.36	0.114	11.532	23.13	
Li	5.31	0.007	0.749	65.44	
Mg	2.18	0.043	4.375	0.47	
Mn	19.17	0.954	96.313	0.15	
Hg	7.31	-0.007	-0.743	-13.51	
Mo	3.64	0.008	0.781	33.79	
Nd	7.83	0.060	6.082	96.90	
Ni	7.27	0.030	2.986	10.35	
P	2.55	0.270	27.260	2.93	
K	4.11	0.103	10.409	176.57	
Sm	7.04	0.159	16.047	71.54	
Se	3.29	0.129	13.033	28.18	
Si	5.35	0.236	23.886	10.19	
Ag	23.22	0.010	1.023	91.38	
Na	16.77	7.378	745.17	0.53	
Sr	7.82	0.091	9.227	0.86	
S	1.27	0.132	13.296	12.42	
Ta	6.20	0.016	1.639	71.90	
Tl	7.08	0.411	41.493	39.61	
Ih	1.48	0.134	13.493	69.98	
Sn	2.56	0.013	1.325	63.75	
Ti	5.56	0.005	0.485	77.10	
W	2.72	0.005	0.517	100.17	
U	7.48	1.492	150.71	51.22	
V	6.88	0.012	1.215	38.95	
Zn	7.36	0.030	3.033	3.74	
Zr	6.39	0.024	2.467	47.05	

Dilution factor : 101.000

Sample name : F553
 Sample code 1 : DUPSAM
 Sample code 2 : 21
 Sample code 3 : 89075
 Programme : SST 14-May-90 14:51:02

NAME	MV	INT	CONCEN	DILCOR	RSD
Al	21.75	44.786	940.50	0.95	
Sb	0.66	0.445	9.353	5.72	
As	2.15	0.082	1.731	9.07	
Ba	6.41	0.052	1.082	4.54	
Be	1.26	0.003	0.069	8.01	
Bi	16.73	6.298	132.25	0.93	
B	7.75	0.037	0.775	14.76	
Cd	4.74	0.007	0.155	9.22	
Ca	25.27	1.006	21.135	1.04	
Ce	8.18	0.718	15.078	12.08	
Cr	5.25	0.577	12.107	0.24	
Co	0.23	0.106	2.230	18.92	
Cu	4.62	0.072	1.503	8.66	
Eu	6.16	0.014	0.296	12.37	
Fe	46.04	5.497	115.45	1.09	
La	0.45	0.070	1.465	13.78	
Pb	0.38	0.359	7.548	3.53	
Li	5.53	0.031	0.648	12.54	
Mg	7.98	0.238	4.993	1.19	
Mn	84.84	4.452	93.496	0.82	
Hg	7.73	0.009	0.186	5.74	
Mo	3.83	0.030	0.633	8.53	
Nd	8.21	0.461	9.688	15.03	
Ni	8.46	0.126	2.644	1.40	
P	4.16	1.170	24.570	3.99	
K	4.28	0.831	17.460	14.64	
Sm	7.38	0.790	16.582	12.05	
Se	3.65	0.584	12.256	3.32	
Si	6.97	1.130	23.721	2.17	
Ag	24.53	0.060	1.264	11.67	
Na	50.67	34.643	727.50	1.14	
Sr	18.45	0.424	8.905	1.05	
S	1.73	0.571	11.997	3.39	
Ta	6.51	0.098	2.059	15.94	
Tl	7.61	1.553	32.607	4.20	
Th	1.55	0.567	11.902	8.32	
Sn	2.78	0.068	1.427	6.87	
Ti	5.88	0.034	0.710	9.91	
W	2.93	0.117	2.449	13.20	
U	8.19	9.080	190.68	7.16	
V	7.30	0.055	1.149	4.02	
Zn	11.01	0.119	2.493	0.46	
Zr	6.68	0.097	2.041	11.65	

Dilution factor : 21.0000

Sample name : HNM03
Sample code 1 : HN03
Programme : SST 14-May-90 14:55:07

NAME	MV	INT	CONCEN	RSD
Al	3.08	0.524	3.43	
Si	0.66	0.469	3.30	
As	2.12	0.066	16.88	
Ba	5.90	0.023	5.28	
Be	1.27	0.004	13.10	
Bi	8.64	0.379	4.85	
B	7.72	0.035	11.70	
Cd	4.68	0.005	14.75	
Ca	0.69	0.002	76.50	
Cr	8.27	0.836	5.39	
Cr	2.21	0.013	21.87	
Co	0.23	0.145	3.85	
Cu	4.52	0.052	5.33	
Eu	6.21	0.016	6.24	
Fe	3.08	0.016	12.69	
La	0.45	0.076	12.69	
Pb	0.37	0.279	10.50	
Li	5.63	0.041	4.64	
Mg	0.89	0.000		
Mn	1.34	0.004	14.13	
Hg	7.66	0.006	26.57	
Mo	3.80	0.026	7.92	
Nd	8.27	0.516	9.71	
Ni	7.35	0.036	4.26	
P	2.33	0.152	4.31	
K	4.32	0.976	6.89	
Sm	7.47	0.953	4.26	
Se	3.42	0.299	4.68	
Si	5.27	0.193	7.76	
Aq	24.62	0.064	5.29	
Na	8.16	0.452	5.18	
Sr	5.24	0.011	5.43	
S	1.22	0.085	6.41	
Ta	6.56	0.109	6.32	
Tl	7.41	1.120	9.97	
Th	1.56	0.652	3.88	
Sn	2.67	0.039	1.62	
Ti	5.82	0.028	4.27	
W	2.87	0.082	5.32	
U	7.84	5.374	5.62	
V	7.15	0.040	7.64	
Zn	6.43	0.007	6.14	
Zr	6.70	0.100	4.91	

ICP Analysis

May 14, 1990

LMCS Check Standard

Sample name : F555
 Sample code 1 : SST1
 Sample code 2 : DIRECT
 Sample code 3 : 89075
 Programme : SST 14-May-90 14:59:34

NAME	MV	INT	CONCEN	RSD
Al	2.98	0.282	22.74	
Sb	1.63	10.298	0.58	
As	2.17	0.092	8.80	
Ba	178.71	9.752	0.30	
Be	1.21	0.002	23.87	
Bi	8.27	0.108	52.38	
B	142.89	9.935	0.50	
Cd	278.24	9.514	0.18	
Ca	244.14	9.955	0.30	
Ce	14.30	9.105	1.44	
Cr	49.22	8.735	0.45	
Co	1.18	9.281	1.58	
Cu	57.97	9.859	0.30	
Eu	6.46	0.025	6.98	
Fe	82.47	10.146	0.33	
La	0.46	0.093	3.23	
Pb	0.37	0.249	12.80	
Li	92.24	9.304	0.34	
Hg	300.47	10.047	0.21	
Mn	184.29	9.750	0.37	
Hg	7.52	0.001	420.09	
Mo	3.74	0.020	16.58	
Nd	15.78	8.318	1.61	
Ni	125.83	9.615	0.19	
P	2.22	0.090	22.28	
K	9.69	23.442	0.27	
Sm	6.97	0.045	262.59	
Se	5.66	3.131	0.41	
Si	5.03	0.063	39.98	
Ag	23.10	0.005	152.20	
Na	37.04	23.679	0.38	
Sr	323.36	9.966	0.25	
S	1.50	0.351	1.79	
Ta	6.24	0.028	72.58	
Tl	7.17	0.612	10.69	
Th	1.51	0.348	19.21	
Sn	196.21	48.860	0.42	
Tl	5.52	0.001	259.04	
W	3.13	0.215	8.18	
U	7.76	4.508	16.63	
V	6.75	-0.001	-1344.2	
Zn	404.27	9.688	0.23	
Zr	6.39	0.026	46.47	

Sample name : F555
 Sample code 1 : SST2
 Sample code 2 : 89075
 Sample code 3 : DIRECT
 Programme : SST 14-May-90 15:03:40

NAME	MV	INT	CONCEN	RSD
Al	5.34	5.876	0.76	

ICP Analysis

May 14, 1990

LMCS Check Standard

Sample name	:	F555		
Sample code 1	:	SST2		
Sample code 2	:	09075		
Sample code 3	:	DIRECT		
Programme	:	SST		
		14-May-90 15:03:40		
NAME	MV	INT	CONCEN	RSD
Al	5.34	5.076	0.76	
Si	0.70	0.867	7.65	
As	5.35	1.847	1.03	
Ba	5.68	0.010	18.92	
Be	1.20	0.001	40.23	
Bi	82.52	54.393	1.80	
B	8.28	0.076	12.15	
Cd	4.60	0.002	3.53	
Ca	1.09	0.018	1.39	
Ce	7.94	0.387	18.52	
Cr	2.52	0.069	1.47	
Co	0.22	0.032	45.83	
Cu	5.75	0.278	0.68	
Eu	276.68	9.870	1.96	
Fe	2.80	(-0.020	-5.60	
La	16.20)47.161	1.88	
Pb	4.52	52.922	1.44	
Li	5.14	-0.011	-39.29	
Mg	0.82	(-0.002	-2.16	
Mn	1.44	0.010	1.61	
Hg	8.31	0.031	3.10	
Mo	3.69	0.014	20.66	
Nd	8.28	0.528	7.06	
Ni	7.13	0.018	14.85	
P	2.45	0.216	6.40	
K	3.98	-0.448	-12.11	
Sm	12.27	9.608	1.06	
Se	3.40	0.275	13.75	
Si	6.19	0.702	0.99	
Ag	296.28	10.486	1.80	
Na	7.49	-0.090	-46.76	
Sr	5.08	0.006	15.08	
S	1.29	0.152	14.91	
Ta	6.72	0.151	9.31	
Tl	9.86	6.358	2.39	
Th	10.32	53.834	1.80	
Sn	2.80	0.073	9.59	
Ti	6.23	0.065	2.40	
W	2.70	-0.001	-513.20	
U	12.24	51.848	0.98	
V	8.86	0.210	2.60	
Zn	6.85	0.018	4.54	
Zr	6.78	0.121	5.44	

Sample name : E555
Sample code 1 : SST3
Sample code 2 : DIRECT
Sample code 3 : 09075
Programme : SST 14-May-90 15:07:43

NAME	MV	INT	CONCEN	RSD
Al	23.95	49.992	1.92	
Sb	0.75	1.397	5.81	
As	101.97	55.073	1.32	
Ba	5.84	0.020	29.08	
Be	248.95	9.566	2.01	
Bi	9.67	1.132	9.91	
B	8.31	0.078	12.33	
Cd	4.89	0.013	20.84	
Ca	1.21	0.023	1.42	
Cr	7.84	0.239	85.26	
Co	2.33	0.034	15.98	
Co	0.23	0.116	17.35	
Cu	4.60	0.066	18.46	
Eu	5.90	0.005	92.31	
Fe	2.83	-0.016	-47.02	
La	0.43	0.016	84.55	
Pb	0.37	0.258	8.52	
Li	5.31	0.007	138.59	
Mg	0.76	(-0.004	-2.83	
Mn	1.59	0.017	4.44	
Hg	639.29	24.581	1.13	
Mo	412.05	48.123	1.89	
Nd	8.00	0.235	67.17	
Ni	13.18	0.507	1.49	
P	82.73	45.016	1.67	
K	4.11	0.130	209.17	
Sm	7.12	0.309	73.13	
Se	42.87	50.201	1.39	
Si	85.89	44.599	1.35	
Ag	33.62	0.409	4.03	
Na	7.89	0.235	51.59	
Sr	5.11	0.007	38.49	
S	51.37	48.157	0.35	
Ta	189.96	47.591	1.69	
Tl	30.58	50.706	0.60	
Th	1.65	1.154	12.06	
.Sn	3.48	0.245	4.77	
Ti	578.47	50.991	2.26	
W	42.56	20.380	1.34	
U	8.75	14.933	9.64	
V	102.60	9.559	0.80	
Zn	7.72	0.039	3.44	
Zr	213.09	50.342	2.10	

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	E60044
PROCEDURE/REV	LA-503-156/C-2
TECHNOLOGIST	R. Hale
DATE	February 26, 1990
TEMPERATURE	N/A
STARTING TIME	0900
ENDING TIME	1300
CHEMIST	S. A. Catlow

Plutonium Analysis

KOH Fusion

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	F1047
2	Reagent Blank	F1048
3	Sample Comp 12	F1049
4	Duplicate Sample Comp 12	F1050
5	Sample Comp 12	F1055
6	Duplicate Sample Comp 12	F1056
7	Sample Comp 13	F1073
8	Duplicate Sample Comp 13	F1074
9	Sample Comp 13	F1079
10	Duplicate Sample Comp 13	F1080
11	Spike Sample Comp 13	F1081

	DESCRIPTION	LAB ID
12	Final LMCS Check Std	F1082
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	16B43/.001 mL			N/A
Spike	16B43/.010 mL	F1055/1 mL		N/A

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-1047 SEG.COMP#7 PU
File ID: SD2770.SPC

Counted on: 2/28/90 @ 5: 0
Detector/Geometry number: 2/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	7.5	7.4	472.982	472.982	20.000	8.574	10.000	11.457
2	1961.6	1990.9	361.219	361.219	20.000	12.114	10.000	6.024
3	267.7	271.5	303.904	303.904	20.000	11.590	10.000	4.167
4	2452.4	2458.2	231.088	231.088	20.000	11.609	10.000	6.983
5	9.9	6.3	152.832	152.832	52.000	462.923	26.000	72.922

PEAK RESULTS

Peak ID	AEA Isotope	AEA Fract.	Peak Centroid	Count	Activity
		Exp.	Obs.	Rate c/m	d/m uCi/ea
1		0.0012	6.241	0.10	0.52 0.233E-06
2		0.4286	5.727	36.74	182.50 0.822E-04
3	Th228	0.0642	5.430 5.464	-0.034 0.05	5.50 38.49 0.173E-04
	Am241		5.480 5.464	0.016	
4	Pu239	0.4984	5.143 5.129	0.014 0.05	42.72 212.23 0.956E-04
	Pu240		5.144 5.129	0.015	
5	Np237	0.0076	4.640 4.769	-0.129 2.13	0.65 54.04 0.243E-04
	Np237		4.781 4.769	0.012	

DETECTOR CALIBRATION
Energy(MEV) = 4.066 + (0.0046)*Channel
Energy range (MeV): 4.066 TO 6.421
Efficiency = 0.2013 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	42631.0	100.000
Smoothed	42630.9	100.000
Composite fit	42858.6	100.534
Residuals	-228.8	-0.537

Analyzed by: _____
DM

SPECTRUM SD2770, SPC

1 LEGEND: RAW = MODELED PEAKS = 1,2,..., ETC

8862.5

Raw Data Dump for AEA Spectrum: SP:SD2770.SPC

1	0.	0.	0.	0.	0.	0.	1.	0.	1.
11	1.	0.	0.	0.	0.	1.	1.	1.	0.
21	0.	1.	0.	0.	0.	0.	2.	0.	0.
31	0.	0.	0.	0.	0.	0.	1.	0.	1.
41	0.	0.	0.	0.	0.	1.	0.	0.	0.
51	0.	0.	0.	1.	2.	0.	0.	2.	1.
61	2.	0.	0.	0.	1.	0.	0.	0.	1.
71	0.	0.	2.	1.	0.	1.	0.	1.	0.
81	0.	1.	0.	1.	0.	1.	2.	2.	1.
91	0.	0.	0.	1.	0.	1.	0.	0.	2.
101	4.	0.	2.	2.	1.	1.	0.	0.	1.
111	0.	1.	0.	0.	1.	1.	2.	0.	0.
121	1.	1.	2.	1.	1.	0.	2.	0.	1.
131	1.	1.	2.	2.	1.	3.	2.	0.	4.
141	2.	2.	1.	2.	0.	1.	3.	1.	4.
151	5.	1.	3.	3.	1.	2.	2.	2.	1.
161	4.	2.	1.	2.	3.	3.	2.	4.	10.
171	6.	7.	2.	8.	5.	12.	8.	5.	10.
181	5.	7.	11.	5.	7.	9.	12.	6.	9.
191	8.	7.	9.	11.	11.	8.	10.	5.	11.
201	12.	19.	6.	14.	22.	22.	42.	43.	40.
211	72.	70.	126.	163.	189.	253.	285.	346.	425.
221	652.	730.	809.	901.	1014.	1161.	1273.	1376.	1456.
231	1415.	1293.	1198.	965.	835.	603.	463.	314.	236.
241	76.	42.	26.	13.	7.	6.	3.	4.	2.
251	6.	3.	6.	3.	9.	6.	3.	5.	7.
261	11.	8.	4.	3.	4.	10.	7.	7.	12.
271	7.	10.	7.	8.	8.	10.	13.	15.	10.
281	15.	22.	17.	21.	35.	32.	37.	46.	55.
291	66.	61.	50.	93.	84.	87.	118.	137.	132.
301	133.	162.	136.	158.	146.	130.	113.	92.	72.
311	35.	27.	18.	11.	11.	3.	7.	14.	7.
321	5.	4.	2.	7.	9.	11.	15.	8.	13.
331	13.	15.	19.	14.	34.	30.	31.	38.	41.
341	79.	113.	121.	162.	190.	238.	287.	382.	448.
351	575.	627.	737.	764.	840.	899.	1001.	1038.	1122.
361	1156.	1038.	936.	891.	724.	552.	404.	301.	206.
371	52.	37.	19.	10.	1.	1.	1.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	1.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	1.	1.	1.	0.	0.	0.
421	0.	2.	0.	1.	3.	3.	0.	0.	1.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	1.	0.	0.	0.	1.	0.
451	0.	0.	0.	0.	0.	0.	0.	1.	0.
461	1.	3.	0.	1.	2.	0.	3.	3.	6.
471	5.	6.	4.	1.	6.	3.	0.	2.	1.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.							

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-1048 SEG.COMP#8 PU
File ID: SD3002.SPC

Counted on: 2/28/90 @ 5: 0
Detector/Geometry number: 3/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	5.8	5.7	478.842	478.842	20.000	14.589	10.000	5.526
2	1711.9	1727.6	364.340	364.340	24.000	13.774	12.000	7.444
3	62.9	66.5	306.293	306.293	24.000	12.506	12.000	1.978
4	10.3	10.7	268.032	268.032	20.000	3.851	10.000	1.021
5	22.4	22.1	232.826	232.826	20.000	9.541	10.000	5.308

PEAK RESULTS

Peak ID	AEA Isotope	AE Fract.	Peak Centroid	Count	Activity	
		Exp.	Obs.	Rate c/m	d/m uCi/ea	
1	Pu236	0.0034	6.318	0.12	0.60 0.272E-06	
2	Cm243	0.9204	5.756 5.769	-0.013 0.07	32.84 166.41 0.750E-04	
3	Pu238	0.0604	5.499 5.490	0.009 0.06	2.16 14.87 0.670E-05	
	Am241		5.480 5.490	-0.010		0.513E-05
4	Pu239	0.0057	5.306	0.02	0.20 1.00 0.452E-06	
5	Pu240	0.0101	5.143 5.137	0.006 0.05	0.36 1.80 0.810E-06	
			5.144 5.137	0.007		0.810E-06

DETECTOR CALIBRATION

$$\text{Energy(MeV)} = 4.020 + (0.0048) * \text{Channel}$$

Energy range (MeV): 4.020 TO 6.477

Efficiency = 0.2014 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	17785.0	100.000
Smoothed	17784.3	99.996
Composite fit	17843.4	100.329
Residuals	-59.1	-0.332

Analyzed by: _____
DM

SPECTRUM SD3002.SPC

1 LEGEND: RAW = MODELED PEAKS = 1,2,..., ETC

6509.8

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Raw Data Dump for AEA Spectrum: SP:SD3002.SPC

1	0.	0.	0.	0.	0.	1.	0.	0.	1.	1.
11	0.	0.	2.	1.	0.	0.	2.	1.	0.	0.
21	0.	0.	1.	0.	0.	0.	0.	0.	1.	2.
31	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
41	0.	2.	0.	0.	0.	1.	0.	0.	0.	1.
51	0.	0.	0.	0.	2.	1.	1.	1.	0.	2.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	1.	0.	1.	0.	0.	0.	3.	0.	2.
81	0.	1.	2.	0.	0.	1.	0.	0.	1.	0.
91	2.	2.	1.	0.	0.	0.	0.	0.	2.	0.
101	2.	0.	0.	0.	0.	0.	0.	2.	1.	0.
111	1.	1.	0.	0.	1.	1.	0.	0.	0.	1.
121	0.	1.	2.	0.	1.	3.	0.	1.	1.	2.
131	1.	1.	0.	1.	3.	1.	1.	0.	0.	5.
141	0.	0.	1.	0.	1.	1.	1.	2.	2.	0.
151	2.	1.	1.	4.	1.	0.	0.	1.	1.	1.
161	1.	1.	0.	1.	1.	1.	0.	1.	1.	1.
171	1.	1.	1.	3.	0.	3.	2.	0.	2.	2.
181	0.	2.	1.	0.	1.	0.	0.	1.	1.	0.
191	0.	1.	1.	0.	1.	0.	2.	3.	1.	0.
201	1.	0.	0.	1.	0.	0.	2.	0.	1.	1.
211	0.	1.	0.	3.	2.	4.	3.	2.	3.	6.
221	7.	5.	7.	6.	5.	7.	15.	12.	16.	11.
231	18.	16.	15.	13.	9.	6.	12.	6.	10.	4.
241	3.	5.	5.	3.	3.	3.	1.	0.	7.	4.
251	4.	4.	4.	6.	8.	8.	8.	7.	12.	12.
261	10.	7.	10.	19.	7.	11.	18.	10.	9.	7.
271	14.	9.	11.	12.	9.	9.	6.	8.	10.	6.
281	3.	8.	7.	9.	26.	18.	18.	19.	28.	21.
291	20.	23.	18.	24.	32.	29.	19.	22.	33.	30.
301	27.	35.	26.	41.	33.	32.	34.	33.	27.	33.
311	27.	14.	16.	8.	6.	7.	0.	3.	5.	2.
321	1.	1.	1.	2.	3.	3.	5.	5.	4.	2.
331	7.	9.	13.	8.	12.	17.	12.	13.	15.	19.
341	23.	37.	55.	73.	98.	129.	149.	178.	204.	240.
351	345.	352.	396.	468.	549.	604.	702.	794.	836.	844.
361	934.	966.	970.	933.	936.	853.	753.	639.	556.	463.
371	332.	225.	173.	102.	66.	43.	19.	15.	8.	3.
381	2.	0.	1.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
411	0.	0.	0.	0.	0.	2.	1.	1.	0.	0.
421	0.	0.	1.	0.	3.	0.	1.	0.	0.	0.
431	2.	1.	0.	1.	1.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
451	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
461	1.	1.	1.	0.	0.	2.	1.	1.	3.	3.
471	5.	2.	2.	3.	3.	2.	3.	1.	3.	5.
481	4.	2.	1.	0.	3.	1.	1.	0.	0.	0.
491	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-1049 SEG.COMP#9 PU
File ID: SD4761.SPC

Counted on: 2/28/90 @ 5: 0
Detector/Geometry number: 4/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	8.7	8.6	472.888	472.888	28.000	14.629	14.000	10.253
2	1589.9	1627.9	362.196	362.196	20.000	10.803	10.000	4.704
3	171.3	173.5	304.948	304.948	20.000	11.168	10.000	3.107
4	376.2	89.2	266.637	266.637	12.000	7.376	6.000	6.021
5	4449.2	4443.1	231.933	231.933	20.000	10.224	10.000	5.305
6	52.1	44.5	151.951	151.951	28.000	48.629	14.000	19.190
7	3.9	3.6	110.650	110.650	20.000	8.673	10.000	0.262
8	28.3	28.8	25.360	25.360	20.000	14.012	10.000	6.702

PEAK RESULTS

Peak ID	AEA Isotope	AEA Fract.	Peak Exp.	Centroid Obs.	Count Diff.	Rate FWHM	c/m	Activity d/m	Activity uCi/ea
1	Pu236	0.0014		6.268	0.07	0.16		0.70	0.315E-06
2		0.2638	5.756	5.747	0.009	0.05	30.04	132.60	0.597E-04
3	Am241	0.0344	5.480	5.478	0.002	0.05	3.92	18.03	0.812E-05
4		0.0107		5.298		0.03	1.22	5.27	0.237E-05
5	Pu239	0.6690	5.143	5.135	0.008	0.05	76.18	329.51	0.148E-03
	Pu240		5.144	5.135	0.009				0.148E-03
6	Np237	0.0133	4.781	4.759	0.022	0.23	1.52	7.55	0.340E-05
7		0.0025		4.565		0.04	0.28	1.22	0.549E-06
8		0.0048		4.164		0.07	0.54	2.35	0.106E-05

DETECTOR CALIBRATION
Energy(MEV) = 4.045 + (0.0047)*Channel
Energy range (MeV): 4.045 TO 6.452
Efficiency = 0.2312 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	56882.0	100.000
Smoothed	56876.0	99.989
Composite fit	56934.3	100.092
Residuals	-58.4	-0.103

Analyzed by: _____

SPECTRUM SD4761.SPC

1 LEGEND: RAW = MODELED PEAKS = 1,2,..., ETC

15118.5

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Raw Data Dump for AEA Spectrum: SP:SD4761.SPC

1	0.	0.	0.	0.	0.	5.	2.	9.	6.	8.
11	3.	5.	7.	10.	5.	6.	8.	13.	15.	15.
21	23.	16.	13.	13.	21.	16.	13.	13.	14.	9.
31	12.	9.	4.	3.	4.	2.	3.	0.	1.	1.
41	1.	1.	0.	2.	0.	1.	2.	1.	2.	2.
51	1.	0.	1.	1.	0.	2.	0.	1.	0.	2.
61	2.	1.	1.	1.	1.	0.	2.	1.	4.	1.
71	1.	2.	0.	1.	1.	2.	0.	0.	4.	2.
81	1.	4.	1.	1.	0.	3.	1.	1.	2.	2.
91	0.	3.	2.	2.	0.	4.	3.	1.	2.	0.
101	1.	3.	3.	1.	6.	1.	1.	2.	6.	1.
111	4.	1.	2.	3.	4.	0.	1.	2.	2.	4.
121	1.	4.	5.	6.	7.	2.	5.	1.	6.	5.
131	6.	3.	5.	8.	8.	12.	11.	18.	15.	19.
141	14.	21.	15.	20.	26.	23.	17.	35.	29.	23.
151	36.	26.	25.	23.	27.	21.	14.	15.	13.	10.
161	11.	11.	9.	8.	11.	3.	4.	12.	10.	10.
171	6.	9.	9.	13.	10.	7.	13.	12.	13.	16.
181	17.	11.	14.	12.	14.	14.	13.	23.	15.	19.
191	15.	15.	15.	18.	18.	22.	16.	24.	30.	22.
201	25.	33.	49.	53.	51.	66.	66.	85.	99.	127.
211	160.	198.	221.	286.	345.	411.	494.	625.	715.	838.
221	957.	1054.	1274.	1433.	1666.	1828.	2078.	2238.	2528.	2598.
231	2624.	2527.	2410.	2097.	1731.	1275.	887.	654.	373.	230.
241	155.	65.	40.	23.	14.	13.	13.	14.	5.	12.
251	13.	24.	21.	25.	28.	35.	34.	40.	34.	29.
261	48.	39.	41.	49.	53.	56.	52.	47.	49.	39.
271	25.	15.	17.	19.	18.	11.	8.	10.	11.	17.
281	7.	14.	24.	18.	21.	30.	24.	36.	31.	53.
291	46.	38.	54.	43.	52.	64.	63.	52.	82.	76.
301	92.	87.	104.	110.	91.	97.	84.	67.	58.	48.
311	37.	21.	19.	15.	7.	10.	7.	7.	11.	6.
321	6.	8.	12.	13.	12.	10.	16.	12.	13.	15.
331	9.	10.	26.	20.	31.	32.	34.	42.	49.	43.
341	67.	86.	112.	113.	156.	176.	236.	256.	334.	359.
351	464.	480.	499.	586.	644.	680.	727.	797.	822.	888.
361	908.	927.	841.	816.	677.	566.	462.	267.	174.	106.
371	53.	25.	12.	6.	1.	3.	0.	0.	0.	0.
381	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
391	1.	0.	0.	1.	0.	0.	1.	1.	0.	0.
401	0.	0.	1.	0.	0.	0.	0.	1.	2.	0.
411	1.	1.	0.	0.	2.	0.	0.	0.	0.	0.
421	1.	2.	1.	0.	0.	1.	1.	1.	1.	0.
431	1.	0.	0.	0.	2.	0.	0.	0.	0.	1.
441	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
451	2.	0.	0.	0.	0.	0.	0.	1.	2.	1.
461	1.	2.	2.	0.	2.	6.	3.	3.	7.	5.
471	6.	5.	3.	6.	3.	1.	4.	5.	3.	2.
481	1.	4.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	1.	0.								

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-1050 PU
File ID: SD2773.SPC

Counted on: 3/1/90 @ 2: 0
 Detector/Geometry number: 2/ 1
 Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	12.5	12.8	476.239	476.239	24.000	12.217	12.000	9.814
2	1517.9	1541.0	363.262	363.262	20.000	12.001	10.000	5.779
3	146.8	147.9	304.845	304.845	24.000	13.323	12.000	3.716
4	619.4	102.2	264.983	264.983	12.000	4.210	6.000	6.436
5	3711.0	3704.6	231.708	231.708	20.000	11.739	10.000	6.644
6	26.4	19.3	149.033	149.033	32.000	124.637	16.000	31.054
7	13.4	13.6	20.529	20.529	20.000	18.891	10.000	11.153

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Centroid Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1		0.0022		6.256		0.06	0.22	1.08	0.487E-06
2	Pu236	0.2855	5.756	5.737	0.019	0.06	28.59	144.91	0.653E-04
3	Th228	0.0348	5.430	5.468	-0.038	0.06	3.49	24.40	0.110E-04
	Am241		5.480	5.468	0.012				0.830E-05
4		0.0101		5.285		0.02	1.02	5.04	0.227E-05
5	Pu239	0.6541	5.143	5.131	0.012	0.05	65.48	325.31	0.147E-03
	Pu240		5.144	5.131	0.013				0.147E-03
6	Np237	0.0105	4.640	4.751	-0.111	0.57	1.05	87.32	0.393E-04
	Np237		4.781	4.751	0.030				0.271E-05
7		0.0027		4.160		0.09	0.27	1.36	0.613E-06

DETECTOR CALIBRATION
 Energy(MEV) = 4.066 + (0.0046)*Channel
 Energy range (MeV): 4.066 TO 6.421
 Efficiency = 0.2013 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	49874.0	100.000
Smoothed	49871.9	99.996
Composite fit	50059.8	100.373
Residuals	-188.0	-0.377

Analyzed by: _____

SPECTRUM SD2773.SPC

1 LEGEND: RAW = MODELED PEAKS = 1,2,..., ETC

12972.3

7
7
76
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6

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4
43
3
.3
.3

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....2.
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2

1
1
1

Raw Data Dump for AEA Spectrum: SP:SD2773.SPC

1	0.	0.	0.	0.	0.	1.	3.	5.	5.	3.
11	1.	6.	5.	10.	8.	9.	5.	7.	7.	6.
21	8.	8.	5.	6.	7.	5.	3.	1.	2.	1.
31	1.	3.	3.	1.	2.	0.	0.	1.	0.	0.
41	0.	0.	1.	0.	0.	0.	1.	1.	1.	1.
51	1.	1.	0.	2.	1.	2.	1.	1.	1.	1.
61	1.	1.	3.	0.	1.	1.	0.	2.	1.	2.
71	0.	1.	1.	0.	0.	2.	0.	1.	1.	1.
81	1.	1.	1.	0.	0.	1.	1.	1.	0.	3.
91	1.	0.	1.	1.	1.	1.	1.	0.	1.	0.
101	2.	0.	2.	2.	3.	3.	1.	1.	1.	2.
111	2.	0.	1.	2.	3.	1.	4.	3.	0.	3.
121	5.	1.	2.	2.	2.	5.	2.	6.	2.	8.
131	4.	7.	1.	4.	7.	8.	3.	6.	6.	7.
141	11.	14.	11.	16.	10.	13.	17.	18.	14.	9.
151	12.	14.	6.	10.	11.	11.	8.	5.	4.	4.
161	8.	8.	3.	3.	8.	5.	8.	12.	8.	9.
171	3.	6.	4.	7.	5.	6.	16.	9.	8.	7.
181	8.	11.	9.	13.	12.	11.	9.	12.	7.	13.
191	11.	12.	14.	21.	20.	24.	19.	13.	15.	18.
201	20.	23.	28.	33.	36.	44.	54.	53.	65.	98.
211	106.	153.	189.	211.	307.	341.	431.	528.	621.	731.
221	798.	968.	1150.	1295.	1443.	1655.	1890.	1971.	2080.	2177.
231	2107.	2063.	1898.	1772.	1380.	1102.	856.	640.	443.	285.
241	191.	102.	44.	33.	20.	15.	8.	5.	8.	13.
251	16.	15.	24.	22.	16.	18.	31.	28.	29.	34.
261	30.	27.	40.	29.	33.	28.	32.	32.	22.	29.
271	30.	12.	13.	13.	12.	5.	13.	12.	13.	10.
281	11.	21.	19.	15.	25.	16.	34.	21.	26.	36.
291	31.	41.	47.	53.	39.	44.	63.	63.	56.	74.
301	72.	83.	88.	85.	90.	60.	70.	69.	53.	44.
311	26.	29.	30.	5.	10.	8.	8.	10.	4.	7.
321	2.	6.	7.	9.	8.	9.	3.	6.	4.	3.
331	8.	8.	9.	9.	15.	17.	18.	15.	27.	36.
341	48.	47.	72.	99.	100.	147.	152.	203.	252.	286.
351	331.	392.	446.	467.	530.	555.	618.	775.	784.	844.
361	824.	835.	847.	831.	785.	661.	569.	436.	330.	232.
371	159.	82.	41.	36.	6.	9.	4.	1.	0.	0.
381	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
391	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.

401	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
411	0.	0.	0.	0.	0.	1.	0.	0.	2.	0.
421	0.	1.	1.	2.	1.	0.	1.	2.	0.	2.
431	3.									

	0.	0.	1.	2.	1.	0.	0.	0.	1.
441	0.	0.	0.	1.	0.	0.	1.	0.	0.
451	0.	0.	1.	1.	0.	0.	1.	0.	0.
461	0.	3.	1.	0.	1.	2.	5.	7.	4.
471	4.	8.	9.	7.	6.	5.	8.	8.	6.
481	3.	2.	3.	2.	0.	1.	0.	0.	1.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.							

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-1081 PU
File ID: SD4764.SPC

Counted on: 3/ 1/90 @ 2: 0
Detector/Geometry number: 4/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	14.2	14.6	477.094	477.094	20.000	11.283	10.000	8.448
2	5.1	4.4	429.367	429.367	28.000	19.912	14.000	7.140
3	1899.6	1958.3	364.507	364.507	20.000	10.668	10.000	4.248
4	248.9	256.5	306.588	306.588	16.000	10.784	8.000	3.158
5	2358.6	2379.9	233.638	233.638	20.000	10.789	10.000	4.743
6	6.2	7.2	127.676	127.676	152.000	2.000	76.000	0.200

PEAK RESULTS

Peak ID	AEA Isotope	Fract.	Peak Exp.	Centroid Obs.	Count Diff.	Rate FWHM	c/m	Activity d/m uCi/ea
1		0.0028		6.287		0.05	0.24	1.05 0.472E-06
2	Bi212	0.0012	6.040	6.063	-0.023	0.09	0.11	1.28 0.577E-06
3	Pu236	0.4265	5.756	5.758	-0.002	0.05	37.17	164.06 0.739E-04
4	Pu238	0.0642	5.499	5.486	0.013	0.05	5.59	33.61 0.151E-04
	Am241		5.480	5.486	-0.006			0.116E-04
5	Pu239	0.5021	5.143	5.143	-0.000	0.05	43.76	189.27 0.853E-04
	Pu240		5.144	5.143	0.001			0.853E-04
6	Np237	0.0032	4.640	4.645	-0.005	0.01	0.28	19.94 0.898E-05

DETECTOR CALIBRATION
Energy(MEV) = 4.045 + (0.0047)*Channel
Energy range (MeV): 4.045 TO 6.452
Efficiency = 0.2312 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	43876.0	100.000
Smoothed	43875.5	99.999
Composite fit	43576.0	99.316
Residuals	299.4	0.682

Analyzed by: _____
DM

SPECTRUM SD4764.SPC

1 LEGEND: RAW = MODELED PEAKS = 1,2,..., ETC

7838.7

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w Data Dump for AEA Spectrum: SP:SD4764.SPC

1	0.	0.	0.	0.	0.	1.	1.	0.	2.
1	1.	1.	0.	0.	1.	0.	0.	1.	1.
1	0.	0.	0.	1.	0.	1.	0.	0.	0.
1	0.	0.	0.	1.	1.	3.	0.	2.	0.
1	0.	2.	0.	0.	3.	1.	1.	1.	0.
1	0.	1.	1.	0.	2.	0.	0.	2.	0.
1	2.	1.	2.	1.	0.	1.	0.	0.	1.
1	0.	2.	1.	1.	4.	2.	0.	1.	1.
1	2.	2.	1.	2.	2.	1.	1.	2.	1.
1	2.	2.	0.	3.	1.	3.	2.	1.	3.
1	1.	1.	2.	2.	4.	1.	2.	2.	2.
1	1.	3.	2.	3.	3.	1.	3.	1.	0.
1	2.	2.	4.	4.	3.	3.	4.	5.	2.
1	3.	1.	1.	2.	1.	5.	0.	3.	5.
1	3.	2.	3.	5.	1.	2.	3.	2.	11.
1	5.	6.	6.	3.	5.	4.	4.	7.	4.
1	3.	6.	5.	6.	2.	6.	4.	7.	10.
1	7.	15.	10.	10.	8.	11.	10.	11.	14.
1	10.	12.	19.	16.	14.	17.	17.	20.	23.
1	23.	19.	24.	24.	27.	25.	34.	26.	27.
1	41.	36.	47.	57.	63.	53.	59.	57.	74.
1	105.	135.	125.	159.	181.	208.	262.	280.	330.
1	459.	527.	584.	667.	742.	796.	947.	1059.	1172.
1	1341.	1327.	1364.	1257.	1269.	1126.	895.	678.	519.
1	239.	116.	67.	34.	15.	12.	7.	8.	4.
1	4.	3.	1.	4.	6.	7.	10.	5.	15.
1	7.	6.	8.	6.	10.	9.	6.	11.	10.
1	11.	7.	12.	14.	6.	12.	17.	14.	22.
1	25.	11.	25.	30.	26.	30.	38.	42.	38.
1	46.	64.	73.	64.	79.	56.	79.	101.	88.
1	122.	154.	137.	130.	134.	133.	149.	135.	127.
1	78.	62.	47.	25.	19.	11.	6.	14.	11.
1	17.	14.	19.	18.	17.	14.	24.	25.	23.
1	27.	32.	48.	45.	37.	49.	55.	55.	64.
1	79.	80.	104.	141.	136.	170.	207.	235.	279.
1	387.	438.	536.	549.	637.	681.	696.	784.	870.
1	989.	1034.	1046.	1100.	1075.	1005.	917.	716.	560.
1	239.	148.	72.	43.	24.	6.	3.	4.	2.
1	3.	1.	0.	0.	1.	1.	2.	0.	0.
1	0.	1.	0.	0.	0.	0.	0.	0.	0.
1	0.	2.	0.	0.	0.	0.	0.	0.	1.

1	0.	2.	1.	0.	0.	0.	0.	1.	2.
1	3.	1.	1.	1.	0.	5.	4.	3.	0.
1	3.	2.	0.	2.	3.	1.	1.	0.	1.
1	0.	1.	1.	0.	0.	1.	0.	0.	1.
1	0.	0.	0.	0.	1.	2.	0.	2.	0.
1	2.	0.	2.	1.	0.	1.	1.	5.	5.
1	8.	10.	6.	11.	7.	10.	4.	9.	5.
1	5.	4.	1.	1.	6.	0.	0.	0.	0.
1	0.	0.	0.	0.	0.	0.	0.	0.	0.
1	0.	0.							

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F1082
File ID: SD3006.SPC

Counted on: 3/ 1/90 @11: 0
Detector/Geometry number: 3/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	12.9	13.0	483.559	483.559	16.000	9.054	8.000	2.541
2	1548.5	1574.1	366.919	366.919	20.000	13.463	10.000	5.569
3	204.6	211.2	308.722	308.722	20.000	14.382	10.000	3.642
4	1865.2	1877.5	234.449	234.449	24.000	13.453	12.000	6.348

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid			Count Rate c/m	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.			
1	Cm244	0.0038	6.341	6.341	0.04	0.28	1.38	0.622E-06
2	Cm243	0.4303	5.796	5.781	0.015	0.06	31.81	157.94
3	Pu238	0.0720	5.499	5.502	-0.003	0.07	5.32	36.72
	Am241		5.480	5.502	-0.022			0.165E-04
4	Pu239	0.4939	5.143	5.145	-0.002	0.06	36.51	181.27
	Pu240		5.144	5.145	-0.001			0.817E-04

DETECTOR CALIBRATION
Energy(MEV) = 4.020 + (0.0048)*Channel
Energy range (MeV): 4.020 TO 6.477
Efficiency = 0.2014 CPM/DPM

TOTAL COUNT DATA:

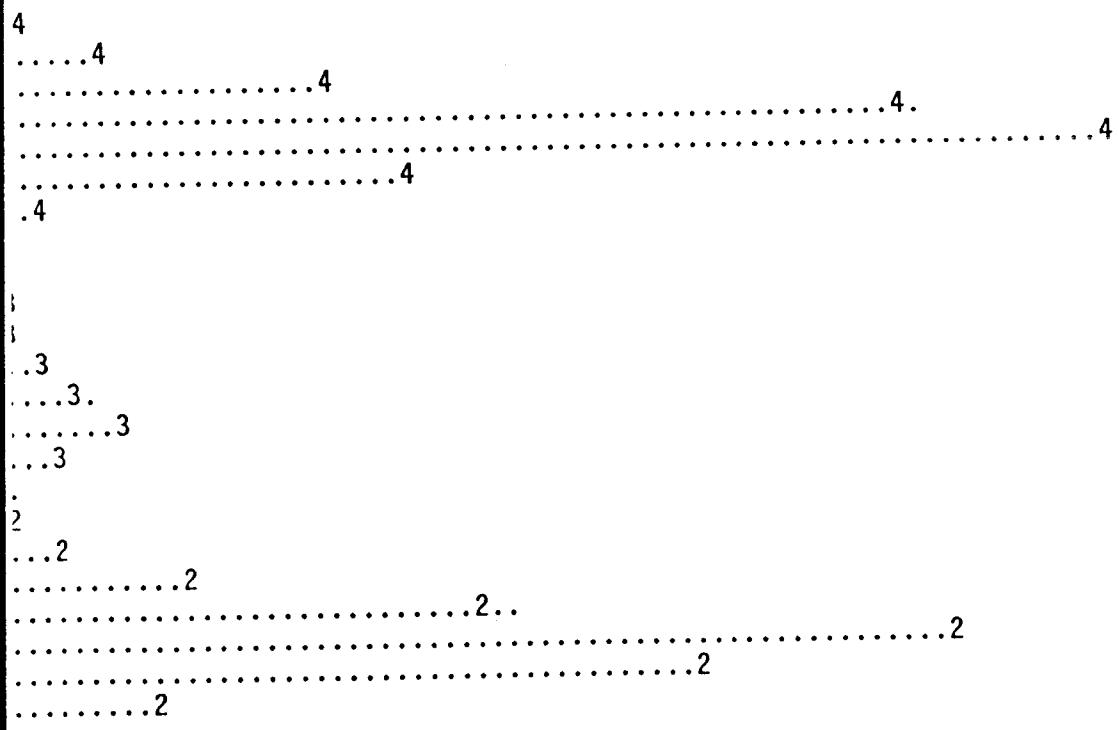
Item	Total	% Recovery
Raw spectrum	37434.0	100.000
Smoothed	37433.4	99.998
Composite fit	36960.3	98.734
Residuals	473.1	1.264

Analyzed by: _____
EMB

SPECTRUM SD3006.SPC

LEGEND: RAW = MODELED PEAKS = 1,2,..., ETC

6701.6



aw Data Dump for AEA Spectrum: SP:SD3006.SPC
 1 0. 0. 0. 0. 0. 0. 2. 0. 0. 0.
 11 0. 2. 0. 0. 0. 0. 1. 1. 0. 1.
 21 1. 1. 2. 1. 0. 0. 0. 0. 2. 1.
 31 0. 1. 1. 0. 0. 0. 1. 0. 0. 0.
 41 0. 0. 0. 2. 0. 0. 1. 0. 2. 0.
 51 0. 1. 1. 2. 0. 0. 0. 1. 1. 1.
 61 0. 0. 2. 2. 0. 0. 0. 1. 0. 2.
 71 1. 0. 0. 2. 3. 2. 1. 1. 2. 1.
 81 0. 0. 1. 2. 0. 1. 0. 0. 3. 0.
 91 4. 0. 1. 1. 3. 1. 0. 1. 1. 3.
 01 1. 1. 1. 2. 0. 2. 3. 0. 0. 0.
 11 1. 2. 0. 0. 0. 0. 4. 2. 1. 4.
 21 1. 1. 1. 4. 2. 4. 2. 1. 0. 2.
 31 2. 2. 1. 1. 4. 4. 0. 3. 0. 3.
 41 2. 1. 1. 5. 0. 5. 1. 3. 6. 3.
 51 2. 8. 6. 1. 9. 3. 5. 4. 4. 4.
 61 5. 4. 3. 5. 5. 4. 8. 4. 4. 9.
 71 14. 12. 5. 7. 6. 7. 6. 9. 13. 10.
 81 15. 12. 8. 14. 13. 13. 12. 17. 11. 21.
 191 21. 16. 14. 19. 25. 22. 22. 14. 25. 33.
 201 19. 34. 44. 38. 42. 34. 53. 52. 48. 74.
 211 71. 78. 88. 101. 128. 142. 171. 194. 236. 286.
 221 322. 356. 414. 512. 556. 683. 735. 780. 900. 950.
 231 1001. 1086. 1062. 1040. 1012. 886. 893. 734. 573. 456.
 241 386. 275. 184. 138. 87. 67. 38. 19. 15. 9.
 251 2. 5. 5. 6. 3. 6. 4. 5. 4. 6.
 261 5. 8. 8. 10. 14. 7. 11. 13. 8. 14.
 271 8. 11. 11. 11. 14. 9. 13. 12. 11. 8.
 281 8. 22. 21. 20. 24. 29. 29. 38. 34. 40.
 291 34. 50. 46. 55. 61. 59. 67. 67. 81. 85.
 301 85. 84. 107. 91. 112. 118. 116. 105. 112. 106.
 311 107. 98. 72. 69. 44. 52. 25. 23. 19. 18.
 321 7. 10. 11. 16. 24. 13. 18. 31. 14. 13.
 331 19. 23. 20. 28. 34. 30. 37. 31. 35. 32.
 341 67. 46. 72. 73. 77. 108. 122. 149. 166. 186.
 351 222. 276. 306. 325. 401. 411. 482. 508. 608. 634.
 361 707. 765. 774. 854. 924. 842. 862. 836. 726. 669.
 371 537. 470. 332. 254. 198. 134. 93. 57. 31. 21.
 381 9. 5. 1. 0. 1. 0. 0. 0. 0. 0.
 391 0. 1. 0. 0. 0. 0. 1. 0. 0. 0.
 401 0. 0. 0. 0. 0. 0. 2. 1. 0. 1.
 411 0. 0. 0. 0. 2. 1. 1. 0. 1. 2.
 421 0. 5. 0. 0. 0. 2. 0. 2. 4. 1.
 431 0. 0. 4. 3. 1. 2. 2. 0. 1. 1.
 441 1. 0. 0. 1. 0. 2. 1. 0. 0. 0.
 451 0. 1. 0. 0. 0. 0. 0. 1. 2. 1.
 461 0. 0. 1. 0. 2. 1. 1. 3. 1. 1.
 471 5. 8. 4. 7. 10. 10. 6. 6. 6. 0.
 481 7. 7. 7. 10. 10. 3. 3. 2. 4. 0.
 491 0. 2. 0. 0. 0. 0. 0. 0. 0. 0.
 511 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	E60044
PROCEDURE/REV	LA-503-156/C-2
TECHNOLOGIST	R. Hale
DATE	February 27, 1990
TEMPERATURE	N/A
STARTING TIME	0900 02-26-90
ENDING TIME	1300 02-27-90
CHEMIST	S. A. Catlow

Americium Analysis

KOH Fusion

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	F1047
2	Reagent Blank	F1048
3	Sample Comp 12	F1049
4	Duplicate Sample Comp 12	F1050
5	Sample Comp 12	F1055
6	Duplicate Sample Comp 12	F1056
7	Sample Comp 13	F1073
8	Duplicate Sample Comp 13	F1074
9	Spike Sample Comp 13	F1075
10	Sample Comp 13	F1079
11	Duplicate Sample Comp 13	F1080

	DESCRIPTION	LAB ID
12	Final LMCS Check Std	F1076
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

STANDARD TYPE	PRIMARY Book # & ALIQUOT VOL.	SECOND Book # & ALIQUOT VOL.	THIRD Book # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	16B43/.010 mL			N/A
Spike	16B43/.010 mL	F1055/1 mL		N/A

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-1047 SEG.COMP#7 AM
File ID: SD5633.SPC

Counted on: 2/28/90 @ 5: 0
Detector/Geometry number: 5/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1635.2	1664.6	301.579	301.579	24.000	18.435	12.000	2.711
2	1984.6	2112.9	256.498	256.498	24.000	12.713	12.000	2.089

PEAK RESULTS

Peak ID	AEA Isotope	Fract.	Peak Exp.	Centroid Obs.	Diff.	FWHM	Count Rate c/m	Activity d/m uCi/ea
1	Pu238	0.4746	5.499	5.509	-0.010	0.09	60.48	360.69 0.162E-03
	Am241		5.480	5.509	-0.029			0.124E-03
2		0.5254		5.297		0.06	66.95	287.45 0.129E-03

DETECTOR CALIBRATION

$$\text{Energy(MEV)} = 4.091 + (0.0047) * \text{Channel}$$

Energy range (MeV): 4.091 TO 6.498

Efficiency = 0.2329 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	64436.0	100.000
Smoothed	64434.7	99.998
Composite fit	63714.4	98.880
Residuals	720.3	1.118

Analyzed by: _____
DM

SPECTRUM SD5633.SPC

1 LEGEND: RAW = MODELED PEAKS = 1,2,..., ETC

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2.....1..
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1

Raw Data Dump for AEA Spectrum: SP:SD5633.SPC

1	0.	0.	0.	0.	0.	0.	3.	4.	0.	5.
11	0.	1.	1.	1.	2.	2.	2.	0.	0.	2.
21	3.	4.	3.	2.	1.	2.	1.	3.	1.	3.
31	0.	2.	4.	5.	3.	1.	2.	4.	3.	5.
41	1.	4.	1.	1.	5.	0.	5.	2.	3.	7.
51	5.	2.	2.	0.	2.	3.	3.	2.	2.	8.
61	3.	7.	1.	4.	7.	5.	4.	6.	4.	12.
71	4.	3.	5.	7.	7.	8.	5.	9.	9.	8.
81	5.	7.	9.	4.	6.	11.	4.	10.	12.	9.
91	4.	6.	9.	7.	13.	12.	5.	6.	8.	8.
101	4.	8.	11.	3.	9.	12.	9.	8.	10.	9.
111	12.	9.	6.	11.	10.	15.	12.	16.	10.	20.
121	11.	10.	12.	9.	11.	12.	11.	19.	13.	19.
131	9.	17.	22.	11.	18.	19.	15.	19.	19.	21.
141	21.	16.	15.	17.	23.	15.	19.	25.	19.	20.
151	18.	23.	27.	18.	27.	27.	27.	24.	28.	36.
161	24.	22.	35.	36.	24.	33.	27.	38.	28.	54.
171	22.	39.	27.	31.	30.	43.	48.	36.	40.	65.
181	35.	44.	60.	50.	47.	62.	53.	64.	73.	98.
191	89.	70.	84.	73.	87.	81.	107.	80.	93.	138.
201	108.	103.	117.	99.	123.	124.	115.	130.	139.	234.
211	135.	167.	172.	198.	189.	190.	219.	210.	241.	435.
221	278.	285.	264.	314.	307.	337.	346.	368.	395.	747.
231	466.	496.	481.	592.	546.	617.	599.	628.	677.	1014.
241	697.	762.	795.	866.	874.	919.	948.	1054.	1065.	1021.
251	1097.	1114.	1118.	1180.	1160.	1207.	1235.	1205.	1124.	310.
261	906.	763.	635.	516.	387.	339.	285.	328.	280.	405.
271	299.	287.	324.	327.	327.	321.	355.	370.	365.	635.
281	405.	439.	438.	448.	472.	507.	519.	585.	572.	867.
291	631.	636.	681.	701.	787.	779.	822.	845.	353.	286.
301	895.	807.	866.	800.	732.	673.	622.	499.	16.	9.
311	219.	199.	132.	103.	87.	64.	51.	40.	1.	0.
321	12.	2.	0.	1.	1.	1.	0.	0.	0.	2.
331	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
341	1.	0.	1.	1.	0.	0.	1.	2.	5.	0.

	1.	4.	3.	2.	0.	0.	2.	1.	0.	0.
361	0.	0.	1.	0.	2.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
421	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
431	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
451	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
461	0.	1.	1.	0.	0.	0.	0.	0.	1.	1.
471	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
481	0.	2.	0.	1.	1.	2.	0.	0.	1.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-1048 SEG.COMP#8 AM
File ID: SD6068.SPC

Counted on: 2/28/90 @ 5: 0
Detector/Geometry number: 6/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	19.0	13.0	304.081	304.081	12.000	8.352	6.000	0.000
2	1739.0	1754.9	258.425	258.425	24.000	13.294	12.000	4.310
3	0.0	0.1	151.595	151.595	0.000	0.200	0.000	0.200

PEAK RESULTS

Peak ID	AEA Isotope	Peak Fract.	Centroid Exp.	Centroid Obs.	Centroid Diff.	Count Rate c/m	d/m	Activity uCi/ea
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TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	20319.0	100.000
Smoothed	20318.5	99.998
Composite fit	21308.6	104.870
Residuals	-990.2	-4.873

Analyzed by: DM

SPECTRUM SD6068.SPC

RAW = MODELED PEAKS = 1,2,... ETC

6278.7

Raw Data Dump for AEA Spectrum: SP:SD6068.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	1.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	1.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	1.	0.	0.	0.	0.	0.	1.
51	0.	1.	0.	1.	0.	0.	0.	1.	1.
61	0.	1.	0.	0.	0.	0.	0.	0.	0.
71	0.	1.	1.	0.	0.	1.	1.	1.	1.
81	0.	0.	2.	0.	1.	0.	1.	0.	0.
91	2.	0.	0.	0.	0.	1.	0.	2.	0.
101	2.	1.	0.	0.	1.	1.	0.	3.	0.
111	0.	2.	3.	0.	0.	1.	0.	1.	0.
121	3.	1.	0.	0.	2.	0.	0.	1.	0.
131	0.	2.	2.	2.	1.	1.	0.	1.	0.
141	3.	3.	1.	0.	2.	1.	2.	4.	5.
151	2.	3.	4.	2.	2.	0.	2.	0.	2.
161	1.	0.	6.	4.	3.	4.	1.	1.	5.
171	3.	1.	4.	2.	6.	6.	6.	6.	6.
181	7.	8.	9.	4.	8.	5.	12.	7.	11.
191	8.	8.	9.	10.	11.	4.	10.	4.	8.
201	15.	11.	20.	17.	22.	23.	24.	24.	22.
211	17.	31.	28.	20.	20.	45.	25.	35.	46.
221	45.	42.	52.	40.	59.	62.	58.	74.	75.
231	100.	117.	122.	143.	207.	158.	195.	210.	224.
241	251.	304.	347.	373.	392.	422.	459.	515.	665.
251	708.	747.	823.	856.	891.	955.	999.	959.	987.
261	794.	689.	531.	374.	313.	213.	162.	137.	90.
271	82.	55.	47.	32.	39.	22.	14.	15.	6.
281	3.	3.	0.	3.	2.	1.	5.	1.	0.
291	3.	3.	2.	3.	5.	2.	1.	1.	5.
301	7.	3.	5.	6.	4.	0.	4.	3.	6.
311	2.	0.	2.	1.	2.	2.	1.	0.	0.
321	1.	0.	0.	0.	1.	2.	0.	0.	1.
331	1.	0.	0.	0.	1.	0.	0.	0.	1.
341	0.	2.	0.	1.	1.	0.	3.	1.	2.
351	0.	2.	1.	1.	1.	1.	0.	0.	1.
361	0.	0.	2.	1.	2.	2.	2.	1.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	1.	0.
411	0.	0.	0.	0.	0.	0.	0.	1.	0.
421	0.	1.	0.	0.	0.	0.	0.	1.	0.
431	0.	0.	0.	0.	0.	1.	0.	0.	0.
441	0.	0.	1.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	1.	1.	0.	0.	0.	0.	0.
471	0.	0.	1.	0.	2.	0.	0.	0.	0.
481	0.	1.	0.	0.	0.	1.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.	0.	0.	0.	0.	0.	0.	0.

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-1049 SEG.COMP#9 AM
File ID: SD8117.SPC

Counted on: 2/28/90 @ 5: 0
Detector/Geometry number: 8/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak		Peak height		Peak center		FWHM		Tau	
ID		Initial	Final	Initial	Final	Initial	Final	Initial	Final
1		905.2	872.5	304.618	304.618	24.000	14.123	12.000	3.520
2		2506.6	2395.0	259.841	259.841	20.000	13.121	10.000	3.272
3		4.3	3.0	156.099	156.099	12.000	34.602	6.000	7.964
4		3.4	2.9	130.403	130.403	16.000	6.402	8.000	4.919
5		4.5	3.6	92.733	92.733	32.000	129.321	16.000	6.018

PEAK RESULTS

Peak	ID	Isotope	AEA	Peak	Centroid	Count		Activity		
			Fract.	Exp.	Obs.	Rate c/m	d/m	uCi/ea		
1		Bi212	0.2691	6.040	6.023	0.017	0.07	22.07	3160.49	0.142E-02
2		Cm244	0.7256	5.796	5.786	0.010	0.07	59.50	3067.15	0.138E-02
		Cm243		5.786	5.786	0.000				0.189E-02
3		Am243	0.0012	5.234	5.236	-0.002	0.18	0.10	47.50	0.214E-04
4			0.0005		5.100		0.03	0.04	1.97	0.885E-06
5		Np237	0.0036	4.781	4.900	-0.119	0.69	0.30	17.50	0.788E-05

DETECTOR CALIBRATION

$$\text{Energy(MeV)} = 4.409 + (0.0053) * \text{Channel}$$

Energy range (MeV): 4.409 TO 7.122

Efficiency = 0.0194 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	41552.0	100.000
Smoothed	41551.2	99.998
Composite fit	41005.2	98.684
Residuals	545.9	1.314

Analyzed by: _____
DM

SPECTRUM SD8117.SPC

RAW = MODELED PEAKS = 1,2,..., ETC

9448.3

Raw Data Dump for AEA Spectrum: SP:SD8117.SPC

1	0.	0.	0.	0.	0.	0.	0.	2.	0.	1.
11	2.	1.	2.	1.	0.	1.	2.	0.	1.	1.
21	1.	0.	1.	1.	1.	1.	0.	1.	1.	0.
31	1.	1.	2.	0.	0.	1.	0.	1.	0.	3.
41	1.	3.	0.	2.	1.	1.	0.	0.	2.	2.
51	1.	2.	0.	1.	1.	0.	1.	2.	2.	1.
61	0.	3.	2.	1.	1.	1.	1.	3.	1.	4.
71	0.	2.	2.	1.	1.	2.	2.	1.	0.	2.
81	0.	1.	2.	2.	2.	1.	1.	1.	5.	3.
91	1.	3.	3.	3.	1.	2.	0.	3.	1.	3.
101	1.	0.	3.	0.	1.	0.	1.	1.	4.	1.
111	3.	2.	1.	4.	1.	0.	0.	4.	0.	1.
121	1.	2.	2.	1.	1.	4.	2.	3.	0.	4.
131	4.	1.	2.	2.	1.	1.	0.	2.	1.	1.
141	0.	2.	1.	2.	2.	2.	1.	2.	1.	3.
151	1.	4.	5.	2.	5.	2.	5.	5.	1.	0.
161	1.	2.	2.	3.	2.	3.	6.	6.	5.	4.
171	4.	5.	3.	2.	1.	5.	9.	2.	2.	5.
181	5.	5.	8.	7.	4.	12.	3.	4.	3.	8.
191	11.	10.	5.	17.	11.	8.	17.	17.	20.	19.
201	18.	22.	19.	22.	18.	34.	36.	37.	39.	47.
211	42.	51.	39.	86.	75.	79.	88.	102.	94.	114.
221	128.	137.	166.	191.	207.	218.	240.	279.	271.	263.
231	271.	271.	320.	285.	315.	323.	338.	331.	361.	356.
241	416.	389.	452.	449.	522.	496.	554.	577.	684.	744.
251	855.	885.	948.	1033.	1260.	1275.	1353.	1469.	1499.	1440.
261	1384.	1195.	942.	784.	619.	467.	357.	287.	223.	212.
271	195.	191.	182.	134.	147.	141.	128.	124.	134.	110.
281	115.	131.	118.	116.	122.	154.	161.	159.	165.	184.
291	177.	235.	192.	255.	260.	289.	325.	369.	390.	428.
301	472.	505.	511.	566.	495.	475.	382.	317.	288.	226.
311	186.	145.	115.	74.	57.	45.	34.	32.	23.	15.
321	8.	6.	7.	3.	4.	6.	2.	1.	1.	4.
331	3.	2.	1.	7.	2.	1.	2.	0.	2.	0.
341	2.	2.	4.	2.	3.	2.	3.	1.	1.	2.
351	2.	1.	3.	2.	2.	1.	4.	2.	0.	3.
361	1.	2.	3.	2.	2.	0.	2.	0.	3.	3.
371	0.	0.	2.	0.	0.	0.	1.	0.	0.	1.
381	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
391	0.	2.	0.	0.	0.	0.	1.	0.	1.	1.
401	1.	0.	0.	1.	0.	0.	0.	0.	0.	1.
411	0.	1								

	.	1.	1.	1.	2.	0.	0.	0.	0.
421	0.	0.	0.	0.	1.	0.	1.	1.	1.
431	2.	0.	0.	1.	2.	1.	0.	1.	0.
441	0.	1.	1.	0.	0.	0.	1.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	1.	0.	0.	0.	0.	0.	0.
471	0.	1.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.							

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-1050 AM
File ID: SD5636.SPC

Counted on: 3/ 1/90 @ 2: 0
Detector/Geometry number: 5/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	146.5	146.6	303.951	303.951	20.000	13.154	10.000	2.833
2	481.6	479.1	257.840	257.840	20.000	12.486	10.000	3.133

PEAK RESULTS

Peak ID	AEA Isotope	AEA Fract.	Peak Centroid Exp.	Centroid Obs.	Diff.	FWHM	Count Rate c/m ²	d/m	Activity uCi/ea
1	Pu238	0.2521	5.499	5.520	-0.021	0.06	3.95	23.57	0.106E-04
	Am241		5.480	5.520	-0.040				0.813E-05
2		0.7479		5.303		0.06	11.73	50.35	0.227E-04

DETECTOR CALIBRATION

Energy(MEV) = 4.091 + (0.0047)*Channel

Energy range (MeV): 4.091 TO 6.498

Efficiency = 0.2329 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	8227.0	100.000
Smoothed	8227.0	100.000
Composite fit	7839.2	95.286
Residuals	387.8	4.714

Analyzed by: DM

SPECTRUM SD5636.SPC

1 LEGEND: RAW = MODELED PEAKS = 1,2,..., ETC

1692.3

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.2.
....2.
.....2
.....2
.....2
1.....2..
.1.....2..
.1.....2...
2...1...
.....1
.....1.
.....1
.....1
...1

Raw Data Dump for AEA Spectrum: SP:SD5636.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	1.	1.	0.	0.	0.	1.	0.	0.	0.
21	0.	0.	0.	0.	0.	1.	0.	0.	1.
31	1.	0.	0.	0.	1.	0.	0.	0.	1.
41	1.	0.	1.	0.	0.	2.	0.	0.	0.
51	1.	1.	0.	0.	0.	1.	2.	0.	1.
61	3.	0.	1.	1.	1.	2.	1.	0.	0.
71	1.	1.	2.	1.	1.	1.	0.	1.	0.
81	4.	1.	2.	0.	1.	1.	1.	1.	0.
91	0.	0.	1.	1.	0.	1.	1.	0.	1.
101	0.	0.	1.	2.	1.	3.	1.	2.	2.
111	0.	2.	1.	1.	6.	1.	1.	1.	2.
121	0.	2.	1.	0.	5.	1.	0.	2.	2.
131	0.	1.	3.	1.	2.	3.	3.	3.	4.
141	3.	2.	2.	4.	2.	1.	3.	3.	2.
151	2.	6.	4.	3.	3.	5.	1.	4.	2.
161	2.	1.	3.	4.	6.	3.	2.	3.	5.
171	5.	2.	4.	4.	5.	2.	0.	6.	3.
181	2.	4.	3.	7.	7.	6.	4.	3.	6.
191	5.	11.	6.	7.	11.	10.	11.	7.	12.
201	13.	15.	18.	10.	14.	14.	8.	11.	11.
211	18.	16.	17.	15.	23.	22.	13.	21.	21.
221	27.	23.	15.	31.	40.	37.	45.	32.	47.
231	46.	50.	51.	60.	59.	64.	81.	73.	73.
241	98.	101.	112.	130.	126.	154.	146.	170.	152.
251	205.	225.	215.	240.	253.	285.	286.	273.	254.
261	186.	148.	148.	109.	59.	50.	40.	40.	36.
271	19.	26.	18.	23.	22.	19.	12.	14.	26.
281	17.	18.	16.	27.	28.	32.	32.	17.	36.
291	44.	44.	50.	62.	66.	68.	69.	62.	51.
301	71.	75.	99.	74.	81.	72.	68.	44.	35.
311	25.	13.	5.	12.	4.	10.	8.	1.	3.
321	6.	0.	0.	0.	0.	1.	0.	0.	1.
331	0.	0.	0.	0.	0.	0.	1.	3.	0.
341	0.	1.	0.	1.	0.	1.	1.	0.	0.
351	0.	1.	1.	2.	0.	0.	0.	0.	0.
361	0.	1.	0.	1.	0.	0.	0.	0.	1.
371	0.	0.	0.	0.	0.	0.	0.	1.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	1.
391	2.	0.	0.	0.	0.	0.	0.	0.	2.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	1.	0.	0.	0.	0.	0.
431	1.	0.	0.	1.	0.	0.	0.	1.	0.
441	0.	0.	0.	1.	0.	0.	0.	0.	0.
451	0.	1.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	1.	0.	0.	0.	1.
471	0.	0.	0.	0.	0.	0.	1.	0.	0.
481	2.	2.	0.	1.	0.	0.	1.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-1075 AM
File ID: SD6071.SPC

Counted on: 3/ 1/90 @ 2: 0
Detector/Geometry number: 6/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1109.2	1112.8	302.991	302.991	24.000	17.400	12.000	2.441
2	1431.7	1447.8	257.455	257.455	20.000	13.514	10.000	2.044
3	3.7	2.3	103.001	103.001	16.000	128.602	8.000	2.243
4	2.8	1.8	70.898	70.898	12.000	1.484	6.000	0.256

PEAK RESULTS

Peak ID	AEA Isotope	AE Fract.	Peak Exp.	Centroid Obs.	Centroid Diff.	Count FWHM	Rate c/m	d/m	Activity uCi/ea
---------	-------------	-----------	-----------	---------------	----------------	------------	----------	-----	-----------------

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	45149.0	100.000
Smoothed	45148.9	100.000
Composite fit	45282.9	100.297
Residuals	-133.9	-0.297

Analyzed by: _____
DM

SPECTRUM SD6071.SPC

SPECTRUM 3B8071:SPC
RAW = ... MODELED PEAKS = 1,2,..., ETC

5803.8

2
2
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1.....2
1.....2.
.1.....
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2.....
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1

Raw Data Dump for AEA Spectrum: SP:SD6071.SPC

1	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
11	0.	0.	2.	1.	0.	0.	0.	0.	0.	0.	3.
21	1.	1.	0.	1.	2.	2.	2.	0.	0.	0.	1.
31	1.	1.	1.	0.	2.	2.	1.	0.	0.	0.	1.
41	0.	1.	2.	0.	2.	0.	0.	0.	2.	2.	1.
51	2.	3.	2.	2.	1.	1.	2.	2.	2.	2.	5.
61	2.	4.	4.	0.	1.	1.	0.	1.	4.	3.	
71	3.	0.	1.	4.	1.	1.	1.	1.	1.	1.	2.
81	2.	0.	3.	4.	3.	2.	3.	0.	3.	0.	3.
91	1.	4.	1.	5.	1.	5.	0.	2.	0.	0.	3.
101	6.	7.	2.	3.	0.	4.	2.	4.	6.	6.	3.
111	3.	2.	3.	3.	3.	3.	7.	4.	5.	5.	7.
121	6.	4.	2.	4.	4.	3.	9.	2.	6.	6.	14.
131	9.	5.	7.	6.	6.	11.	6.	5.	12.	12.	10.
141	9.	7.	7.	11.	7.	8.	14.	12.	11.	11.	21.
151	10.	16.	10.	13.	4.	17.	9.	11.	11.	11.	
161	11.	12.	19.	23.	18.	13.	21.	16.	25.	25.	22.
171	25.	22.	23.	32.	28.	23.	39.	27.	37.	37.	22.
181	32.	40.	37.	24.	38.	38.	49.	55.	53.	53.	42.
191	62.	59.	65.	59.	57.	62.	63.	70.	91.	91.	87.
201	86.	89.	86.	103.	93.	124.	108.	92.	105.	105.	127.
211	112.	147.	139.	155.	170.	172.	159.	175.	183.	183.	202.
221	205.	215.	233.	265.	263.	289.	273.	293.	300.	300.	318.
231	328.	352.	369.	388.	379.	416.	412.	400.	432.	432.	403.
241	433.	460.	555.	562.	521.	614.	587.	632.	706.	706.	695.
251	737.	749.	787.	855.	819.	911.	912.	851.	826.	826.	823.
261	683.	611.	505.	417.	353.	292.	267.	222.	224.	224.	221.
271	232.	243.	208.	234.	238.	207.	243.	215.	217.	217.	289.
281	285.	283.	287.	295.	290.	311.	320.	354.	354.	354.	381.
291	407.	444.	416.	446.	460.	523.	512.	492.	582.	582.	560.
301	573.	590.	632.	556.	563.	550.	429.	390.	308.	308.	266.
311	198.	150.	138.	89.	63.	66.	45.	34.	19.	19.	20.
321	10.	9.	1.	4.	1.	0.	1.	1.	0.	0.	0.
331	1.	1.	0.	0.	1.	1.	0.	0.	0.	0.	1.
341	0.	0.	1.	0.	2.	0.	1.	0.	0.	0.	2.
351	0.	2.	1.	0.	1.	1.	1.	0.	0.	0.	0.
361	2.	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.
371	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
431	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
451	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	2.	0.	0.	1.	0.
471	1.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.
481	0.	1.	1.	0.	3.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F1076
File ID: SD2774.SPC

Counted on: 3/ 1/90 @11: 0
Detector/Geometry number: 2/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	6.2	8.1	350.980	350.980	16.000	6.534	8.000	0.000
2	1094.1	1121.8	297.840	297.840	28.000	23.295	14.000	3.505
3	1332.2	1412.3	252.521	252.521	28.000	17.669	14.000	2.910
4	0.0	0.1	41.645	41.645	0.000	0.200	0.000	0.200

PEAK RESULTS

Peak ID	AEA Isotope	Peak Fract.	Centroid Exp.	Centroid Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Ra224	0.0309	5.680	5.680	-0.000	0.03	2.85	15.08	0.679E-05
2	Th228	0.4552	5.430	5.436	-0.006	0.11	41.99	293.80	0.132E-03
3	Am243	0.5139	5.234	5.227	0.007	0.08	47.40	2140.67	0.964E-03
4		0.0000		4.257		0.00	0.00	0.00	0.111E-08

DETECTOR CALIBRATION

Energy(MEV) = 4.066 + (0.0046)*Channel

Energy range (MeV): 4.066 TO 6.421

Efficiency = 0.2013 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	46060.0	100.000
Smoothed	46058.6	99.997
Composite fit	46122.7	100.136
Residuals	-64.2	-0.139

Analyzed by: _____
EMB

SPECTRUM SD2774.SPC

1 LEGEND: RAW = MODELED PEAKS = 1,2,..., ETC

6008.8

1
1
1
1
4
1
1
1
1
1
1
1
1
1
1
1
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1
1
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1
1
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3.
3..
13..
1.3..
1...3.
2.....3
2.....3.
12.....3..
1.2.....3...
1..2.....3.....
1....2.....3.....
1.....2.....3.....
1.....3.....2.....
1.....2.
1.....2.
1.....2.
1.....2.
1....2
1
1
1
1
1

Raw Data Dump for AEA Spectrum: SP:SD2774.SPC

1	0.	0.	0.	0.	0.	2.	0.	2.	0.	2.
11	1.	1.	0.	3.	1.	3.	2.	1.	3.	1.
21	0.	1.	1.	1.	4.	3.	1.	0.	5.	5.
31	0.	3.	2.	2.	1.	3.	0.	3.	3.	2.
41	3.	4.	2.	3.	1.	1.	1.	3.	1.	3.
51	0.	3.	1.	3.	3.	2.	0.	3.	0.	2.
61	4.	4.	4.	1.	4.	4.	1.	5.	4.	9.
71	1.	4.	3.	7.	2.	4.	2.	2.	1.	7.
81	6.	4.	3.	4.	3.	6.	3.	2.	6.	3.
91	4.	5.	3.	3.	6.	8.	4.	3.	3.	1.
101	6.	5.	8.	5.	7.	6.	3.	5.	8.	4.
111	8.	8.	11.	8.	10.	16.	15.	13.	14.	11.
121	7.	9.	12.	9.	17.	7.	16.	8.	10.	10.
131	21.	11.	15.	14.	16.	13.	15.	14.	16.	25.
141	7.	12.	13.	13.	12.	16.	16.	19.	13.	20.
151	17.	14.	29.	19.	26.	23.	27.	28.	26.	11.
161	22.	28.	37.	32.	29.	36.	23.	42.	35.	44.
171	30.	37.	29.	39.	38.	36.	45.	53.	49.	53.
181	40.	39.	48.	57.	43.	56.	55.	50.	65.	68.
191	62.	68.	65.	68.	79.	82.	98.	68.	67.	88.
201	90.	88.	101.	101.	89.	103.	123.	100.	112.	152.
211	140.	131.	170.	161.	163.	165.	179.	197.	206.	218.
221	226.	233.	248.	260.	274.	265.	292.	301.	309.	358.
231	388.	356.	408.	404.	441.	468.	499.	550.	567.	555.
241	606.	593.	643.	718.	748.	756.	760.	752.	796.	812.
251	762.	764.	807.	792.	759.	687.	725.	580.	553.	464.
261	406.	371.	299.	283.	258.	233.	237.	222.	208.	222.
271	199.	210.	223.	251.	284.	227.	256.	275.	304.	326.
281	331.	353.	344.	370.	385.	431.	450.	423.	519.	455.
291	511.	553.	568.	564.	590.	592.	540.	582.	564.	534.
301	534.	478.	462.	402.	360.	302.	258.	191.	171.	130.
311	95.	76.	60.	51.	47.	27.	15.	12.	11.	8.
321	4.	0.	2.	1.	4.	0.	1.	0.	2.	1.
331	0.	1.	1.	1.	1.	4.	2.	0.	0.	1.
341	3.	2.	2.	2.	2.	1.	0.	7.	5.	2.
351	5.	2.	5.	0.	2.	0.	2.	0.	1.	0.
361	0.	0.	2.	0.	1.	0.	1.	1.	0.	0.
371	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
381	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	1.	0.	0.	1.	0.	1.	0.
411	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
421	1.	0.	0.	1.	0.	0.	0.	1.	1.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	1.	0.							

			0.	0.	0.	1.	0.	0.	0.
451	1.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	1.	1.	0.	1.	0.	2.
481	0.	0.	2.	0.	0.	0.	0.	1.	1.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.							

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	E60044
PROCEDURE/REV	LA-933-141/G-1
TECHNOLOGIST	R. Hale
DATE	March 12, 1990
TEMPERATURE	N/A
STARTING TIME	0800
ENDING TIME	1400
CHEMIST	S. A. Catlow

Neptunium Analysis

KOH Fusion

Canberra Jupiter

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	F0999
2	Reagent Blank	F1000
3	Sample Comp 14	F1001
4	Duplicate Sample Comp 14	F1002
5	Sample Comp 15	F1025
6	Duplicate Sample Comp 15	F1026
7	Sample Comp 12	F1049
8	Duplicate Sample Comp 12	F1050
9	Sample Comp 13	F1073
10	Duplicate Sample Comp 13	F1074
11	Spike Sample Comp 13	F1075

	DESCRIPTION	LAB ID
12	Final LMCS Check Std	F1076
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	148B33/.100 mL			N/A
Spike	148B33/.100 mL	F1073/.250 mL		N/A

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	WA77390
PROCEDURE/REV	LA-438-101/C-2
TECHNOLOGIST	S. Lai
DATE	March 02, 1990
TEMPERATURE	N/A
STARTING TIME	0800
ENDING TIME	1500
CHEMIST	S. A. Catlow

Technetium Analysis

KOH Fusion

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	F1047
2	Reagent Blank	F1048
3	Sample Comp 12	F1049
4	Duplicate Sample Comp 12	F1050
5	Spike Sample Comp 12	F1051
6	Final LMCS Check Std	F1052
7		
8		
9		
10		
11		

	DESCRIPTION	LAB ID
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	68B39/.250 mL			20 mL
Spike	68B39/.250 mL	F1049/1.00 mL		20 mL

Single Shell Tank Calibration Record

ANALYTE: TC 99

PROCEDURE: LA-508-121

REVISION: A-0

INSTRUMENT: Liquid Scintillation Counter

PROPERTY NUMBER: WA77390

TECHNOLOGIST: R. A. Jones

PAYROLL NUMBER: 65801

DATE: September 02, 1988

CALIBRATION STANDARD ID: Packard 6008502 #2

ANALYTE CONCENTRATION: See attached calibration sheets.

TYPE OF CALIBRATION: Quench Curve

COMMENTS: Quench Curve

DEPARTMENT OF STATE
WASHINGTON, D. C., APRIL 16, 1919.
RECORDED IN THE RECORDS
OF THE DEPARTMENT OF STATE
AS RECEIVED FROM THE
AMERICAN EMBASSY, LONDON,
LONDON, ENGLAND.

THE BOSTONIAN, OR, THE AMERICAN JOURNAL OF LITERATURE AND SCIENCE, VOL. VI., NO. 12, DECEMBER, 1835.

THE JOURNAL OF CLIMATE VOL. 17, NO. 10, OCTOBER 2004

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STANFORD 16 (2004) 171–176

STANDARD SPECIFICATIONS
FOR THE PRODUCTION
OF STRENGTHENED
PAPER, FABRIC AND
PLASTIC MATERIALS

CENT DE RECHERCHE QUÉBECOISE EN ÉTUDES DE LA CULTURE

QUENCH STANDARDS FOR INJECTION

TIME: 10:00 AM 10/10/81

HW	REF1	HW	REF1
73.67	92.93	97.00	97.17
100.3	95.45	113.0	96.76
125.0	94.58	132.7	94.43
147.7	94.32	154.0	91.57
179.3	92.90	200.7	94.94

DELETE STANDARD (N/ P/BIN)

RE-ORDER QZMDT

DISPLAY QUENCH CURVE (Y/N) N

PLOT QUENCH CURVE (Y/N) N

ID(120MAY) TC-99, ALL
PRESET TIME(1.01-999.99) 10.00
SAMPLE REPEAT(0-10) 1
CYCLE REPEAT(1-10) 1
RS232 OUTPUT(Y/N) N
2 PHASE(Y/N) Y POST EFFCET 0.00
USER 5
HS(0-10) 3 SUBROUTINE 0
SCU(MIN) Y PREPARE CYCLIC COUNTING
SOFT(Y/N) N LOG TIME(1-999.99) 1.00 COUNTS 7.00
SOFT(Y/N) Y COUNT TIME(1-999.99) 0.10 COUNTS 0.00
VOL ALM(0.00-0.50) 0.00 VOL/ML(0.00-0.50) 0.00

COUNT CHANNELS(1,2,3, 4)

CHANNEL	SETTINGS	UL	DL	PRESET	BKG COUNT	MAX COUNT	MIN COUNT
CHANNEL 1	150	0.00	0.10	0.00	0.00	0.00	0.00

DATA CALCULATION PROGRAM SELECT CODE 0

1 UPM 2 COUNTS 3 COUNT RATE 4 DL COUNT 5 DL DPM 6 DL DPM
7 DL DPM 8 SL DPM 9 SL COUNT 10 SL RATE 11 SL COUNT

PRINT FORMAT(1=STANDARD/0=SCIENTIFIC) 1

USERID: TC-99, ALL PRESET TIME: 10.00 SAT 03 MAR 1990 00:57
 SAMPLE REPEAT: 1 CYCLE REPEAT: 1 SCR:N RCM:22:N
 HBT: 3 ADD:Y OCF:N RCM:Y 2 PHASE MONITOR:Y POST CHN:N VIAL:6 VOLUME:1
 RCM-TIME: 0.10 INT:999.95
 RCM-TIME: 0.10 INT:999.95
 CHANNEL 1-LL:150 UL: 800 2SIGMA: 0.10 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0

SINGLE LABEL DPM SET UP ON 19 SEP 1989 06:22

UNKNOWN ID:TC-99 DIRECT UNKNOWN REPLICATES: 4

UNKNOWN NORM FACTOR TSDI:6 1.00000

UNKNOWN LIMITS TSDI:DPM

UNKNOWN HALF LIFE CORRECTION

INDIVIDUAL UNKNOWN NORM FACTOR:TSDI BACKGROUND QUENCH CURVE:Y

STANDARD ID:TC-99-A 1-16 QUENCH LIMITS LOW:73.67 HIGH:207.7

HALF LIFE(DAYS) TSDI:N

STANDARD DPM TSDI:6.00000000

CAM	POS	CH	CPM	2SIG%	TIME	EL TIME	Avg HI	RCM%	DP	FPR
P1	***-1	1	55.60	0.40	10.00	11.04	105.3	0.20		
							HIs: 105, 106, 105			

BACKGROUND QUENCH CURVE: CONSTANT

CHANNEL 1-LL:150 UL: 800 2SIGMA: 0.10 BKG SUB: 0.0000000000
 QUENCH CURVE COEFFICIENTS:
 $A_1 = 55.60000$ $B = 0.00000000$ $C = 0.0000000000$ $D = 0.0000000000$

BACKGROUND QUENCH CURVE CORRELATION TABLE

BKG	HW	MEASURED		CALCULATED		PERCENT DIFF.	FLAG
		CPM		CPM			
1	105.3	55.60		55.60		0.00	

BACKGROUND QUENCH LIMITS LOW:0.000 HIGH:1000.
 TOTAL QUENCH LIMITS LOW:73.67 HIGH:207.7

POWERFAIL RECOVERY SAT 03 MAR 1990 05:53

CAM	POS	CH	CPM	2SIG%	TIME	EL TIME	Avg HI	RCM%	DP	FPR
1	***-3	1	205.30	4.41	10.00	11.11	137.0	6.02		
							HIs: 137, 138, 136			
							1501 DPM ± 158.5458			

Flot7

SPN	POG	CH	CPM	PIECE	TYPE	EL TIME	Avg El	RPM	PF	ELT
2	***-4	1	2726.40	1.20	10.00	323.17	134.0	0.12		
F10471	HHR	134, 133, 134								
	1801	ZEFF CH1:94.49						1801 DPM		
3	***-5	1	261.60	3.43	10.00	334.35	133.0	0.13		
F1048	HHR	132, 134, 133								
	1801	ZEFF CH1:94.52						1801 DPM		
4	***-6	1	2636.70	1.20	10.00	345.53	133.3	0.12		
F10481	HHR	133, 133, 134								
	1801	ZEFF CH1:94.54						1801 DPM		
5	***-7	1	2747.80	2.59	10.00	356.70	133.7	0.13		
F1049	HHR	134, 133, 134								
	1801	ZEFF CH1:94.56						1801 DPM		
6	***-8	1	2650.20	1.20	10.00	367.88	134.0	0.13		
F10491	HHR	134, 134, 134								
	1801	ZEFF CH1:94.49						1801 DPM		
7	***-9	1	279.40	2.59	10.00	379.07	133.6	0.04		
F1050	HHR	133, 133, 133								
	1801	ZEFF CH1:94.55						1801 DPM		
8	***-10	1	2677.40	1.20	10.00	390.24	132.0	0.10		
F10501	HHR	132, 132, 132								
	1801	ZEFF CH1:94.55						1801 DPM		
9	***-11	1	219.20	4.00	10.00	401.41	132.3	1.27		
F1051	HHR	132, 132, 133								
	1801	ZEFF CH1:94.54						1801 DPM		
10	***-12	1	2778.60	1.20	10.00	412.57	133.7	0.11		
F10511	HHR	134, 133, 134								
	1801	ZEFF CH1:94.56						1801 DPM		
11	***-1	1	199.10	4.43	10.00	423.79	132.3	0.51		
F1052	HHR	133, 131, 133								
	1801	ZEFF CH1:94.54						1801 DPM		
12	***-2	1	2776.60	1.20	10.00	434.97	132.7	0.07		
F10521	HHR	132, 133, 133								
	1801	ZEFF CH1:94.55						1801 DPM		

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	WA38316
PROCEDURE/REV	LA-220-101/C-0
TECHNOLOGIST	R. Hale
DATE	April 05, 1990
TEMPERATURE	N/A
STARTING TIME	1000
ENDING TIME	1500
CHEMIST	S. A. Catlow

Strontium Analysis

KOH Fusion

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	F0975
2	Reagent Blank	F0976
3	Sample Comp 07	F0977
4	Duplicate Sample Comp 07	F0978
5	Sample Comp 12	F1049
6	Duplicate Sample Comp 12	F1050
7	Spike Sample Comp 12	F1003
8	Final LMCS Check Std	F1004
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	DESCRIPTION	LAB ID
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STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	106B44/1.00 mL			N/A
Spike	106B44/1.00 mL	F1050/.0025 mL		N/A

Single Shell Tank Calibration Record

ANALYTE: SrY ⁹⁰	
PROCEDURE: LQ-508-002	REVISION: A-0
INSTRUMENT: Detector #10	PROPERTY NUMBER: WA38316
TECHNOLOGIST: R.A. Jones	PAYROLL NUMBER: 65801
DATE: May 21, 1989	
CALIBRATION STANDARD ID: 48B16T, 48B16U, 48B16TV, 48B16G, 48B16J, 48B16L	
ANALYTE CONCENTRATION: N/A	
TYPE OF CALIBRATION: Efficiency	

SST-103 Rev. (Draft) 9/15/90 Short Interim

CALIBRATION SHEET FOR ALPHA/BETA SYSTEMS: USING PROCEDURE LQ-508-002

DETECTOR No.	10	TIME ZERO DATE (HD):	13977
RADIOMUCLIDE:	SrY-90	DATE COUNTED (HD):	16309
HALF LIFE:	10590		
COUNT TIME:	5		
CPM BKG:	22	CALIBRATED BY: RA JONES	HD 0 = 09/25/44

STANDARD ID	SIZE	DATE	TIME	COUNTS @ 0 DEG.	COUNTS @ 90 DEG.	COUNTS @ 180 DEG.	COUNTS @ 270 DEG.
48B16B	1	05/21/89		84795	84166	84768	83389
48B16D	1	05/21/89		107308	108714	109687	109090
48B16E	1	05/21/89		208878	200713	210979	211700
48B16G	2	05/21/89		62088	62802	61690	63053
48B16J	2	05/21/89		102092	101782	101676	101546
48B16L	2	05/21/89		192834	198242	197051	195835
STANDARD ID	SIZE	STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY	
48B16B	1"	40910	16834	1.16	19610	0.4793	
48B16D	1"	54640	21718	1.16	25299	0.4630	
48B16TE	1"	104000	41592	1.16	48450	0.4659	
AVERAGE, 1" =		0.4694 +/- @95%	0.0171	3.64 %	ON	05/21/89	
STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY	
48B16G	2"	36760	12460	1.16	14514	0.3948	
48B16J	2"	58980	20333	1.16	23686	0.4016	
48B16L	2"	112700	39176	1.16	45636	0.4049	
AVERAGE, 2" =		0.4005 +/- @95%	0.0101	2.52 %	ON	05/21/89	
STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY	
36B40A6	5"	0	0	1.16	0	ERR	
36B40B6	5"	0	0	1.16	0	ERR	
36B40C5	5"	0	0	1.16	0	ERR	
AVERAGE, 5" =		ERR +/- @95%	ERR	ERR %	ON	05/21/89	
NEW EFFS FOR DET		10 SrY-90	1" =	0.4694	2" =	0.4005	
			5" =	ERR			

CALIBRATION SHEET FOR ALPHA/BETA SYSTEMS: USING PROCEDURE LQ-508-002

DETECTOR 10 POSITION 1

BG
39
2A
1A

EQUATION CO:
Y=F(X)
#0 52719
#1 60632

1.159

$$E_{\text{sr}} = 0.4694$$

$$\frac{E_Y}{E_{\text{sr}}} = \frac{\#1}{\#0} \frac{60632}{52719} = 1.15$$

$$E_Y = 1.15 E_{\text{sr}} \quad \text{and} \quad E_{\text{sr}} = \frac{E_Y + E_{\text{sr}}}{2}$$

$$E_Y = 2 E_{\text{sr}} - E_{\text{sr}} = 2 E_{\text{sr}} - (\frac{1}{1.15} E_Y)$$

$$E_Y + (\frac{1}{1.15}) E_Y = 2 E_{\text{sr}}$$

$$E_Y = \frac{2}{1.87} E_{\text{sr}}$$

$$E_Y = 1.07 E_{\text{sr}}$$

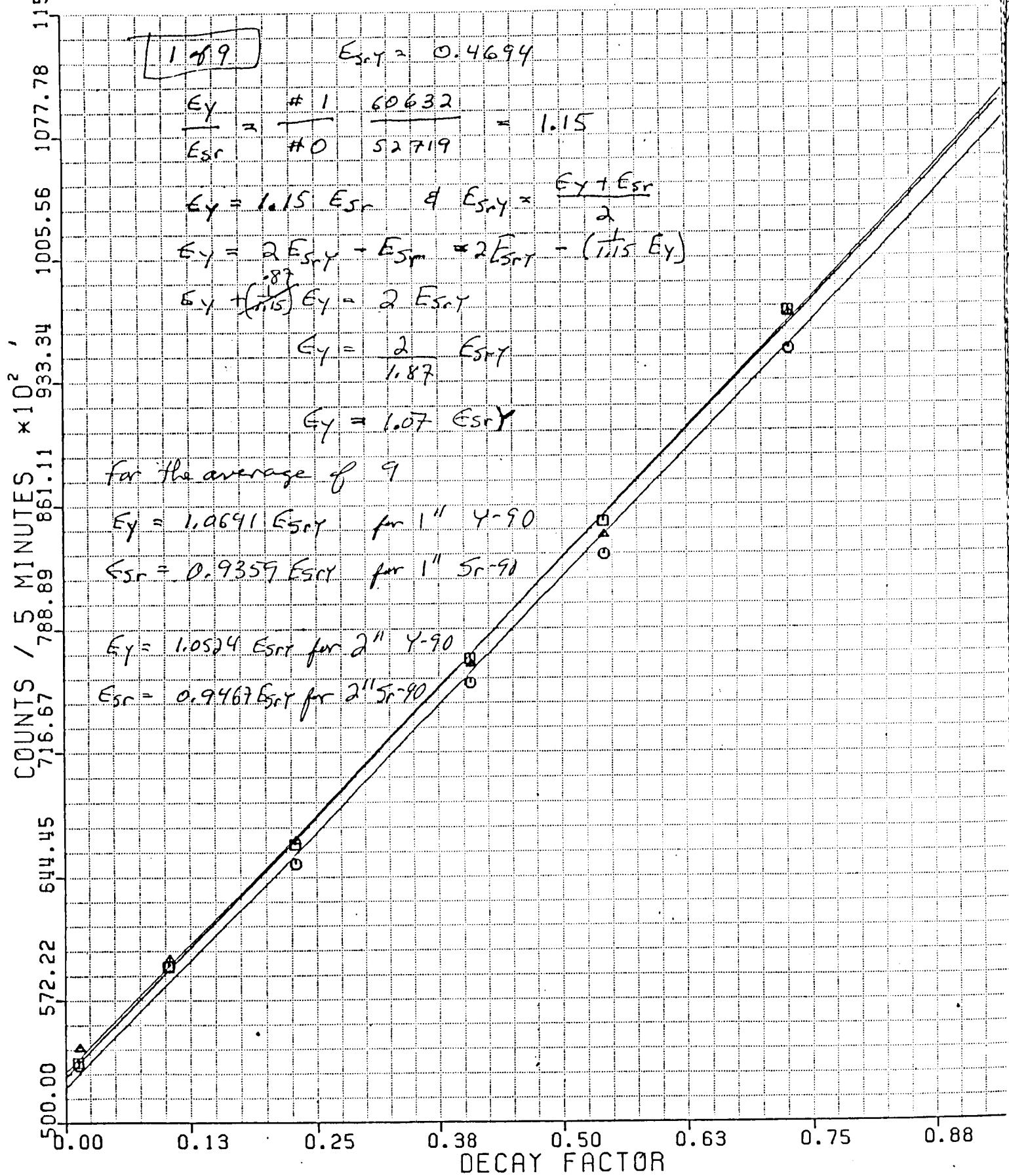
For the average of 9

$$E_Y = 1.0691 E_{\text{sr}} \quad \text{for } 1'' Y-90$$

$$E_{\text{sr}} = 0.9359 E_Y \quad \text{for } 1'' Sr-90$$

$$E_Y = 1.0524 E_{\text{sr}} \quad \text{for } 2'' Y-90$$

$$E_{\text{sr}} = 0.9467 E_Y \quad \text{for } 2'' Sr-90$$



WATER DIGESTION TEST ANALYSIS

Single Shell Tank Project

Water Digestion
Units for Samples are Wet Weight

Tank: 241-U-110
Customer ID: 800081

	Check Standard	Blank	Sample	Duplicate Sample	Spike of Sample	Check Standard
Laboratory ID: Water Digestion	F1198 Complete		F1199 1.06E-02 g/L	F1200 1.04E-02 g/L	F1201 9.97E-03 g/L	
Laboratory ID: pH	F1197 100.70%	F1198 8.49	F1199 8.2	F1200 8.19		F1202 101.00%
Laboratory ID: Flouride	F1197 97.20%	<0.1 ppm	<9.4 ug/g	<9.6 ug/g	99.40%	F1202 100.30%
Chloride	99.90%	0.67 ppm	1.20E+02 ug/g	1.07E+02 ug/g	116.70%	94.80%
Nitrate	101.50%	<1.00 ppm	<9.43E+01 ug/g	<9.43E+01 ug/g	94.00%	101.50%
Phosphate	97.30%	<1.00 ppm	<9.43E+01 ug/g	<9.43E+01 ug/g	94.00%	97.70%
Sulfate	97.36%	<1.00 ppm	8.64E+02 ug/g	845.00 ug/g	92.60%	96.80%
Laboratory ID: Total Organic Carbon	F1197 97.50%	F1198 2.10 ug	F1199 9.34E+02 ug/g	F1200 7.41E+02 ug/g	F1201 97.90%	F1202 97.20%
Laboratory ID: Ammonia	F1197 100.80%	F1198 9.79E+01 ppm	F1199 <9.24E+03 ug/g	F1200 <9.42E+03 ug/g	F1201 99.30%	F1202 97.90%
Laboratory ID: Carbonate	F1197 99.00%	F1198 3.30 ug	F1199 4.48E+03 ug/g	F1200 4.33E+03 ug/g	F1201 106.20%	F1202 100.00%
Laboratory ID: Nitrite	F1197 99.40%	F1198 5.24E-01 ppm	F1199 9.95E-01 ug/g	F1200 1.12E+04 ug/g	F1201 91.50%	F1202 99.20%
Laboratory ID: Total Alpha	F1197 99.90%	F1198 <1.32E-02 uci/L	F1199 <1.24E-04 uci/g	F1200 <1.27E-04 uci/g	F1201 122.80%	F1202 99.30%
Total Beta	103.50%	<5.82E-03 uci/L	<6.95E-04 uci/g	<7.26E-04 uci/g	114.40%	106.70%
Laboratory ID: GEA Cs-137	F1197 96.80%	F1198 <4.96E-02 uci/L	F1199 <5.98E-03 uci/g	F1200 <2.14E-03 uci/g	F1201 99.00%	F1202 97.90%
GEA Cs-137 2nd Run						
Laboratory ID: Americium 241	F1047 106.00%	F1048 <2.28E-02 uci/L	F1055 <4.92E-03 uci/g	F1056 <2.53E-03 uci/g	F1075 101.30%	F1076 106.60%
Laboratory ID: Plutonium	F1047 105.60%	F1048 <8.29E-03 uci/L	F1055 <1.59E-03 uci/g	F1056 <8.20E-04 uci/g	F1081 101.70%	F1082 98.10%
Laboratory ID: Iodine 129	F1053 94.70%	F1054 <6.72E-02 uci/L	F1055 <5.47E-03 uci/g	F1056 *	F1057 102.80%	F1058 102.40%
Laboratory ID: Neptunium 237	F1029 62.80%	F1054 <1.08 uci/L	F1055 <1.45E-01 uci/g	F1056 <1.14E-01 uci/g	F1057 59.20%	F1053 70.50%
Laboratory ID: Technetium 99	F1053 116.30%	F1054 <2.83E-01 uci/L	F1055 6.99E-03 uci/g	F1056 7.22E-03 uci/g	F1057 111.70%	F1058 117.60%
Laboratory ID: Mercury	F1035 97.60%	F1036 <1.00E-02 ppm	F1055 4.64E-02 ug/g	F1056 3.03E-02 ug/g	F1057 78.34%	F1058 96.00%

* Duplicate Sample Not Run.

Single Shell Tank Project

Water Digestion
Units For Samples Are Wet Weight
Second Leaching

Tank: 241-U-110
Customer ID: Core 12 Composite

	Check Standard	Blank	Sample	Duplicate Sample	Spike of Sample	Check Standard
Laboratory ID: Water Digestion			F1055 10.13 g/L	F1056 10.02 g/L	F1057 10.70 g/L	
Laboratory ID: Tritium	F1053 101.70%	F1054 <1.13E-02 uci/L	F1055 2.22E-03 uci/g	F1056 2.42E-03 uci/g	F1057 91.50%	F1058 100.20%
Laboratory ID: Arsenic	F1053 100.60%	F1054 <5.00E-03 ppm	F1055 <4.94E-01 ug/g	F1056 <4.99E-01 ug/g	F1057 96.70%	F1058 96.70%
Laboratory ID: Selenium	F1053 98.90%	F1054 3.78E-03 ppm	F1055 7.70E-02 ug/g	F1056 7.78E-02 ug/g	F1057 77.30%	F1058 100.50%

Single Shell Tank Project

Water Digestion
 Units For Sample Are Wet Weight
 Third Leaching

Tank: 241-U-110
 Customer ID: Core 12 Composite

	Check Standard	Blank	Sample	Duplicate Sample	Spike of Sample	Check Standard
Laboratory ID: Water Digestion			F1055 10.03 g/L	F1056 10.09 g/L	F1057 10.01 g/L	
Laboratory ID: Carbon 14	F1053 89.30%	F1054 <1.13E-03 uci/L	F1055 4.22E-04 uci/g	F1056 4.60E-04 uci/g	F1057 93.80%	F1058 98.70%
Laboratory ID: Strontium	F1053 88.40%	F1054 <3.80E-03 uci/L	F1055 1.16E-01 uci/g	F1056 1.39E-01 uci/g	F1057 98.10%	F1058 92.90%

ICP Results

DATA SUMMARY

Date Analyzed:	JULY 9, 1990	Acid Digested LMCS Standard	NONE
Procedure:	LA-505-151/A-0	Reagent Blank	F0904
Analyst:	J. A. WHITE	Core 12 Composite	F1055
Digestion	Acid Digestion	Duplicate of Core 12 Composite	F1056
Procedure:	LA-505-159/A-0	Spike of Core 5 Composite	F0907
		Acid Digested LMCS Standard	NONE

	Instrument Starting LMCS Standard %	Acid Digest. LMCS Standard %	Reagent BLANK ppm	Wet Weight Sample ug/g	Wet Weight Sample Duplicate ug/g	Spike Recovery %	LMCS ACID Digestion %	Closing LMCS Standard %
Aluminum	101.94%	NA	0.62 LT	3928	2862	125.25%	NA	102.50%
Antimony	103.10%	NA	-0.25 LT	277 LT	259 LT	108.72%	NA	103.33%
Arsenic	108.56%	NA	0.26 LT	76	67 LT	110.09%	NA	109.09%
Barium	108.49%	NA	0.04 LT	36	28	108.99%	NA	106.68%
Beryllium	107.33%	NA	0.01 LT	2	2	108.14%	NA	106.33%
Boron	103.83%	NA	2.40	565	398	103.11%	NA	103.08%
Cadmium	102.99%	NA	0.02 LT	14	11 LT	101.47%	NA	103.17%
Calcium	104.32%	NA	1.04	393	88	103.30%	NA	102.78%
Cerium	96.87%	NA	1.06 LT	1027	799	99.99%	NA	99.00%
Chromium	90.82%	NA	0.03 LT	760	764	90.91%	NA	90.53%
Cobalt	104.45%	NA	-0.31 LT	61 LT	15 LT	NOT CALC.	NA	104.74%
Copper	104.12%	NA	0.08 LT	75	57	106.69%	NA	102.75%
Europium	96.18%	NA	0.02 LT	23	19	95.39%	NA	96.20%
Iron	106.43%	NA	0.22 LT	64	37	106.52%	NA	106.33%
Lanthanum	93.88%	NA	0.06 LT	86	63	95.46%	NA	98.40%
Lithium	102.50%	NA	0.06 LT	50	38	101.09%	NA	101.12%
Magnesium	107.64%	NA	0.45	417	94	124.83%	NA	107.44%
Manganese	103.54%	NA	0.01 LT	7	5	101.98%	NA	102.93%
Mercury	104.05%	NA	0.77	52	41	100.76%	NA	104.93%
Molybdenum	98.32%	NA	0.03 LT	32	28	100.07%	NA	98.41%
Neodymium	95.33%	NA	-0.21 LT	499 LT	373 LT	89.02%	NA	93.97%
Nickel	102.34%	NA	-0.01 LT	52	36 LT	101.50%	NA	102.75%
Potassium	104.45%	NA	2.24 LT	1791	1410	122.48%	NA	106.83%
Selenium	99.48%	NA	0.30 LT	535	415	110.85%	NA	100.23%
Silver	103.78%	NA	0.08 LT	78	63	102.92%	NA	107.60%
Sodium	101.90%	NA	4.10	91342	81990	NOT CALC.	NA	101.79%
Strontium	104.58%	NA	0.02 LT	13	10	102.99%	NA	103.14%
Sulfur	101.58%	NA	0.05 LT	922	832	94.22%	NA	102.49%
Tantalum	96.99%	NA	0.09 LT	157	119	98.38%	NA	97.63%
Thallium	99.91%	NA	1.51	1259	1009	NOT CALC.	NA	99.80%
Tin	102.44%	NA	0.06 LT	59	46	106.91%	NA	102.92%
Titanium	101.96%	NA	0.03 LT	46	37	103.44%	NA	101.79%
Vanadium	99.65%	NA	0.01 LT	60	46	102.07%	NA	98.23%
Zinc	103.98%	NA	0.21	46	14	103.43%	NA	103.54%
Zirconium	96.87%	NA	0.16 LT	126	101	99.10%	NA	96.70%

LT: Less Than

NC: Not Calibrated

NOT CALC: Not Calculated

Instrument Standards Outside Control Limits

Single Shell Tank Project

**Water Digestion
Results on the Laboratory Digestions**

Tank: 241-U-110
Customer ID: Core 12 Composite

	Check Standard	Blank	Sample	Duplicate Sample	Spike of Sample	Check Standard
Laboratory ID: Water Digestion	F1054 Complete		F1055 7.44 g/L	F1056 9.46 g/L	F1057 8.58 g/L	
Laboratory ID: pH	F1053 100.80%	F1054 9.79	F1055 11.65	F1056 11.71		F1058 100.90%
Laboratory ID: Flouride	F1053 106.80%	<1.00E-01 ppm	6.96E+01 ppm	8.25E+01 ppm	110.40%	104.50%
Chloride	102.90%	<1.00E-01 ppm	6.30E+00 ppm	<1.01E+01 ppm	119.80%	97.00%
Nitrate	101.30%	<1.00E+00 ppm	3.79E+02 ppm	4.66E+02 ppm	106.50%	103.40%
Phosphate	103.40%	<1.00E+00 ppm	3.43E+02 ppm	3.87E+02 ppm	110.40%	106.80%
Sulfate	96.50%	<1.00E+00 ppm	<1.01E+02 ppm	<1.01E+02 ppm	105.50%	93.80%
Laboratory ID: Total Organic Carbon	F1053 95.30%	F1054 3.50 ug	F1055 9.35E-03 g/L	F1056 7.70E-03 g/L	F1057 94.50%	F1058 96.80%
Laboratory ID: Ammonia	F1053 103.00%	F1054 <4.37E+01 ppm	F1055 <4.37E+01 ppm	F1056 <4.37E+01 ppm	F1033 101.30%	F1034 98.80%
Laboratory ID: Carbonate	F1053 102.90%	F1054 3.20 ug	F1055 6.10E-02 g/L	F1056 6.00E-02 g/L	F1057 91.10%	F1058 101.10%
Laboratory ID: Nitrite	F1053 99.90%	F1054 <3.59E-01 ppm	F1055 <3.59E-01 ppm	F1056 <3.56E-01 ppm	F1057 98.60%	F1058 98.40%
Laboratory ID: Total Alpha	F1053 98.80%	F1054 <1.25E-04 uci/L	F1055 4.69E-02 uci/L	F1056 2.99E-02 uci/L	F1057 105.50%	F1058 111.80%
Total Beta	103.10%	9.23E-04 uci/L	4.47 uci/L	5.98 uci/L	105.30%	106.20%
Laboratory ID: GEA Cs-137	F1047 103.40%	F1048 <6.23E-02 uci/L	F1055 6.79E+01 uci/L	F1056 7.71E+01 uci/L	F1057 96.50%	F1058 108.60%
Laboratory ID: Plutonium	F1047 105.60%	F1048 <8.29E-03 uci/L	F1055 <1.18E-02 uci/L	F1056 <7.76E-03 uci/L	F1081 101.70%	F1082 98.10%
Laboratory ID: Americium 241	F1047 106.00%	F1048 <2.28E-02 uci/L	F1055 <3.66E-02 uci/L	F1056 <2.39E-02 uci/L	F1075 101.30%	F1076 106.60%
Laboratory ID: Iodine 129	F1053 94.70%	F1054 <6.72E-02 uci/L	F1055 <4.07E-02 uci/L	F1056 *	F1057 102.80%	F1058 102.40%
Laboratory ID: Neptunium 237	F1029 62.80%	F1054 <1.08 uci/L	F1055 <1.08 uci/L	F1056 <1.08 uci/L	F1057 59.20%	F1053 70.50%
Laboratory ID: Technetium 99	F1053 116.30%	F1054 <2.83E-01 uci/L	F1055 5.20E-02 uci/L	F1056 6.83E-02 uci/L	F1057 111.70%	F1058 117.60%
Laboratory ID: Mercury	F1035 97.60%	F1036 <1.00E-02 ppm	F1055 3.45E-04 ppm	F1056 2.87E-04 ppm	F1057 78.34%	F1058 96.00%

* Duplicate Sample Not Run.

Single Shell Tank Project

Water Digestion
Results on the Laboratory Digestion
Second Leaching

Tank: 241-U-110
Customer ID: Core 12 Composite

	Check Standard	Blank	Sample	Duplicate Sample	Spike of Sample	Check Standard
Laboratory ID: Water Digestion			F1055 10.13 g/L	F1056 10.02 g/L	F1057 10.70 g/L	
Laboratory ID: Tritium	F1053 101.70%	F1054 <1.13E-02 uci/L	F1055 2.25E-02 uci/L	F1056 2.42E-02 uci/L	F1057 91.50%	F1058 100.20%
Laboratory ID: Arsenic	F1053 100.60%	F1054 <5.00E-03 ppm	F1055 <5.00E-03 ppm	F1056 <5.00E-03 ppm	F1057 96.70%	F1058 96.70%
Laboratory ID: Selenium	F1053 98.90%	F1054 3.78E-03 ppm	F1055 7.80E-04 ppm	F1056 7.80E-04 ppm	F1057 77.30%	F1058 100.50%

Single Shell Tank Project

**Water Digestion
Results on the Laboratory Digestion
Third Leaching**

Tank: 241-U-110
 Customer ID: Core 12 Composite

	Check Standard	Blank	Sample	Duplicate Sample	Spike of Sample	Check Standard
Laboratory ID: Water Digestion			F1055 10.03 g/L	F1056 10.09 g/L	F1057 10.01 g/L	
Laboratory ID: Carbon 14	F1053 89.30%	F1054 <1.13E-03 uci/L	F1055 4.23E-03 uci/L	F1056 4.64E-03 uci/L	F1057 93.80%	F1058 98.70%
Laboratory ID: Strontium	F1053 88.40%	F1054 <3.80E-03 uci/L	F1055 1.16 uci/L	F1056 1.40 uci/L	F1057 98.10%	F1058 92.90%

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	N/A
PROCEDURE/Rev	LA-504-101/A-2
TECHNOLOGIST	J. Kunkel
DATE	February 23, 1990
TEMPERATURE	N/A
STARTING TIME	0800
ENDING TIME	1430
CHEMIST	H. Rich

Water Digestion

NOTE: Sample is not spiked prior to digestion.

- 1) This procedure provides a sample to be spiked later with the appropriate element.
- 2) Analysis performed on this digestion will be identified as 1st leaching.

	DESCRIPTION	LAB ID
1	Reagent Blank	F1054
2	Sample Comp 12	F1055
3	Duplicate Sample Comp 12	F1056
4	Spike Sample Comp 12	F1057
5		
6		
7		
8		
9		
10		
11		

	DESCRIPTION	LAB ID
12		
13		
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22		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
N/A				
Spike (see note 1)				

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	N/A
PROCEDURE/REV	LA-504-101/A-2
TECHNOLOGIST	M. Franz
DATE	March 20, 1990
TEMPERATURE	N/A
STARTING TIME	0730 03-19-90
ENDING TIME	1130 03-20-90
CHEMIST	H. Rich

Water Digestion

NOTE: Sample is not spike prior to digestion.

1) This procedure provides a sample to be spiked later with the appropriate element.

2) Analysis performed on this digestion will be identified as 2nd leaching.

	DESCRIPTION	LAB ID
1	Sample Comp 12	F1055
2	Duplicate Sample Comp 12	F1056
3	Spike Sample Comp 12	F1057
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5		
6		
7		
8		
9		
10		
11		

	DESCRIPTION	LAB ID
12		
13		
14		
15		
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19		
20		
21		
22		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
Spike (see note 1)				

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	N/A
PROCEDURE/REV	LA-504-101/A-2
TECHNOLOGIST	M. Franz
DATE	May 30, 1990
TEMPERATURE	N/A
STARTING TIME	05-17-90
ENDING TIME	05-17-90
CHEMIST	H. Rich

Water Digestion

NOTE: Sample is not spiked prior to digestion.

1) This procedure provides a sample to be spiked later with the appropriate element.

2) Analysis performed on this digestion will be identified as 3rd leaching.

	DESCRIPTION	LAB ID
1	Reagent Blank Comp 05	F0904
2	Sample Comp 05	F0905
3	Duplicate Sample Comp 05	F0906
4	Spike Sample Comp 05	F0907
5	Reagent Blank Comp 06	F0928
6	Sample Comp 06	F0929
7	Duplicate Sample Comp 06	F0930
8	Spike Sample Comp 06	F0931
9	Reagent Blank Comp 07	F0982
10	Sample Comp 07	F0983
11	Duplicate Sample Comp 07	F0984

	DESCRIPTION	LAB ID
12	Spike Comp 07	F0985
13	Reagent Blank Comp 14	F1006
14	Sample Comp 14	F1007
15	Duplicate Sample Comp 14	F1008
16	Spike Sample Comp 14	F1009
17	Reagent Blank Comp 15	F1030
18	Sample Comp 15	F1031
19	Duplicate Sample Comp 15	F1032
20	Spike Sample Comp 15	F1033
21	Reagent Blank Comp 12	F1054
22	Sample Comp 12	F1055

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
N/A				
Spike (see note 1)				

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	N/A
PROCEDURE/Rev	LA-504-101/A-2
TECHNOLOGIST	M. Franz
DATE	May 30, 1990
TEMPERATURE	N/A
STARTING TIME	05-17-90
ENDING TIME	05-30-90
CHEMIST	H. Rich

Water Digestion

NOTE: Sample is not spiked prior to digestion.

- 1) This procedure provides a sample to be spiked later with the appropriate element.
- 2) Analysis performed on this digestion will be identified as 3rd leaching.

	DESCRIPTION	LAB ID
1	Duplicate Sample Comp 12	F1056
2	Spike Sample Comp 12	F1057
3	Reagent Blank Comp 13	F1078
4	Sample Comp 13	F1079
5	Duplicate Sample Comp 13	F1080
6	Spike Sample Comp 13	F1081
7		
8		
9		
10		
11		

	DESCRIPTION	LAB ID
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
N/A				
Spike (see note 1)				

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	AL10653
PROCEDURE/REV	LA-211-102/A-1
TECHNOLOGIST	M. Franz
DATE	February 27, 1990
TEMPERATURE	23.1 C
STARTING TIME	1030
ENDING TIME	1130
CHEMIST	R. E. Brandt

pH Analysis
Water Digestion

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	F1053
2	Reagent Blank	F1054
3	Sample Comp 12	F1055
4	Duplicate Sample Comp 12	F1056
5	Final LMCS Check Std	F1058
6		
7		
8		
9		
10		
11		

	DESCRIPTION	LAB ID
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	72C11B/1 mL			1 mL

Analytical Batch

LAB SEGMENT SERIAL #: F1043

CUSTOMER ID: 000012

INSTRUMENT	Dionex 4000/WB24721
PROCEDURE/REV	LA-533-105/A-3
TECHNOLOGIST	N. Wright
DATE	March 02, 1990
TEMPERATURE	N/A
STARTING TIME	1230
ENDING TIME	1420
CHEMIST	H. Rich

Ion Chromatograph
Water Digestion

	DESCRIPTION	LAB ID
1	Initial LMCS Check Std	F1053
2	Reagent Blank	F1054
3	Sample Comp 12	F1055
4	Duplicate Sample Comp 12	F1056
5	Spike Sample Comp 12	F1057
6	Sample Comp 13	F1079
7	Duplicate Sample Comp 13	F1080
8	Final LMCS Check Std	F1082
9		
10		
11		

	DESCRIPTION	LAB ID
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Check Std	6C11HK/.100 mL			10.1 mL
Spike	35C9-69/.300 mL	F1055/.050 mL		5.3 mL

DIONEX SCHEDULE - A:\90030100.SCH

Inject	Sample Name	Method Name	Data File	Volume	Dilution	Int Std
1	SETUP	c:\windows\ai	c:\windows\ai	1	1	0
2	BLANK	c:\windows\ai	c:\windows\ai	1	1	0
3	LMCS/6C11-HK	c:\windows\ai	c:\windows\ai	1	101	0
4	6358	c:\windows\ai	c:\windows\ai	1	1.11e+003	0
5	6359	c:\windows\ai	c:\windows\ai	1	1.11e+003	0
6	LMCS/6C11-HK	c:\windows\ai	c:\windows\ai	1	101	0
7	6373	c:\windows\ai	c:\windows\ai	1	1.11e+003	0
8	LMCS/6C11-HK	c:\windows\ai	c:\windows\ai	1	101	0
9	983	c:\windows\ai	c:\windows\ai	1	51	0
10	984D	c:\windows\ai	c:\windows\ai	1	51	0
11	1054-B	c:\windows\ai	c:\windows\ai	1	1	0
12	1055	c:\windows\ai	c:\windows\ai	1	101	0
13	1056-D	c:\windows\ai	c:\windows\ai	1	101	0
14	1057-S	c:\windows\ai	c:\windows\ai	1	101	0
15	1079	c:\windows\ai	c:\windows\ai	1	101	0
16	1080-D	c:\windows\ai	c:\windows\ai	1	101	0
17	LMCS/6C11-HK	c:\windows\ai	c:\windows\ai	1	101	0

DATA REPROCESSED ON Wed Oct 10 07:46:05 1990

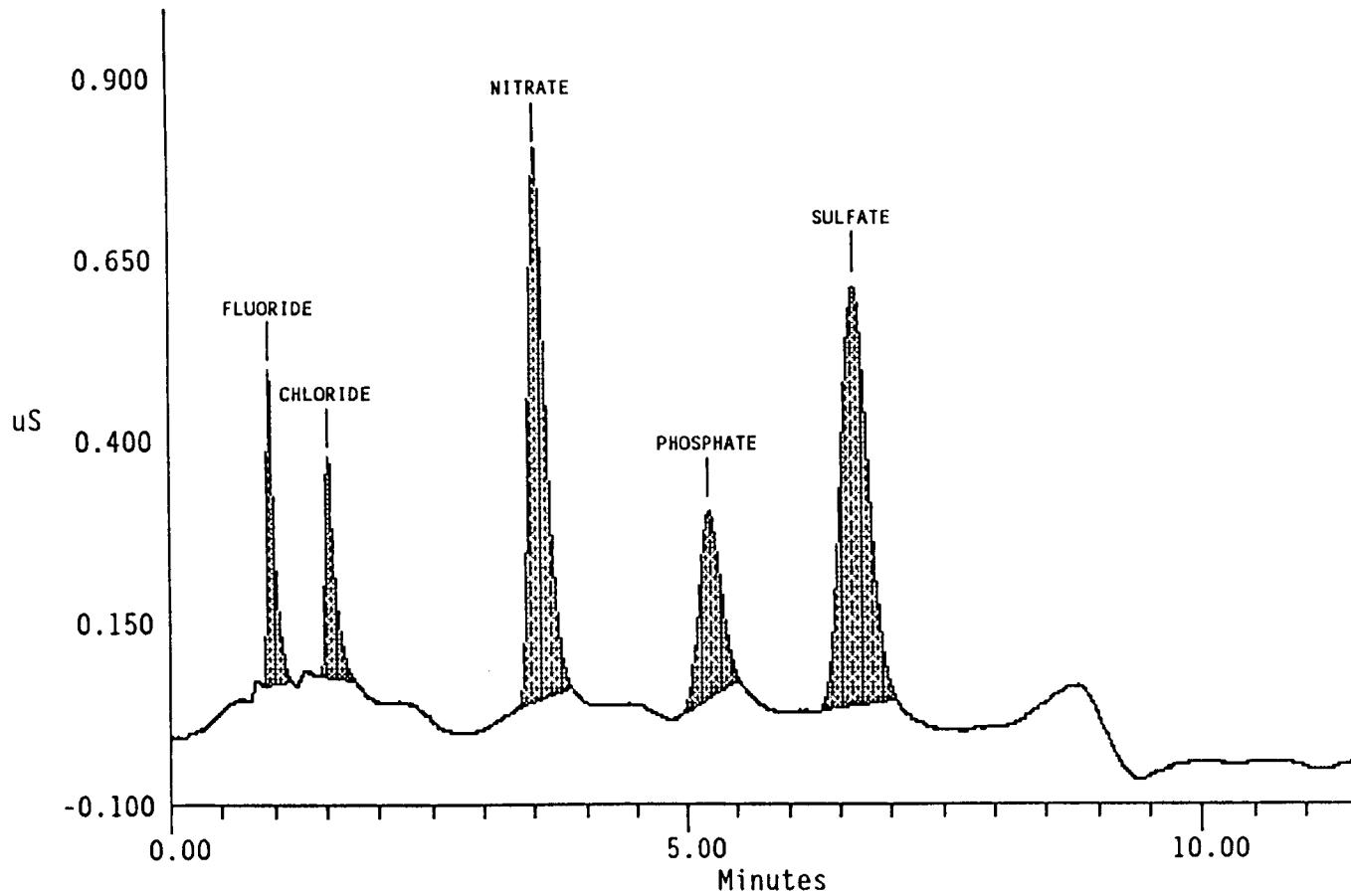
```
=====
| Sample Name: SETUP                               Date: Thu Mar 01 11:05:52 1990 |
| Data File : A:\90030100.D01                   |
| Method    : c:\windows\ai400\method\sst.met     |
| ACI Address: 1        System : 1      Inject#: 1   Detector: CDM-1 |
=====
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
--------	--------	----------	--------	------	-------	------	------	-----

External	1		1	3450	5Hz	0.00	11.50	1000
----------	---	--	---	------	-----	------	-------	------

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl.	%Delta Code
1	0.97	FLUORIDE	0.173	424	2146	1	0.00
2	1.52	CHLORIDE	0.139	295	1919	1	0.00
3	3.52	NITRATE	1.461	749	8826	1	0.00
4	5.22	PHOSPHATE	1.379	257	3951	1	0.00
5	6.65	SULFATE	1.639	576	10721	1	0.00

File: A:\90030100.D01 Sample: SETUP

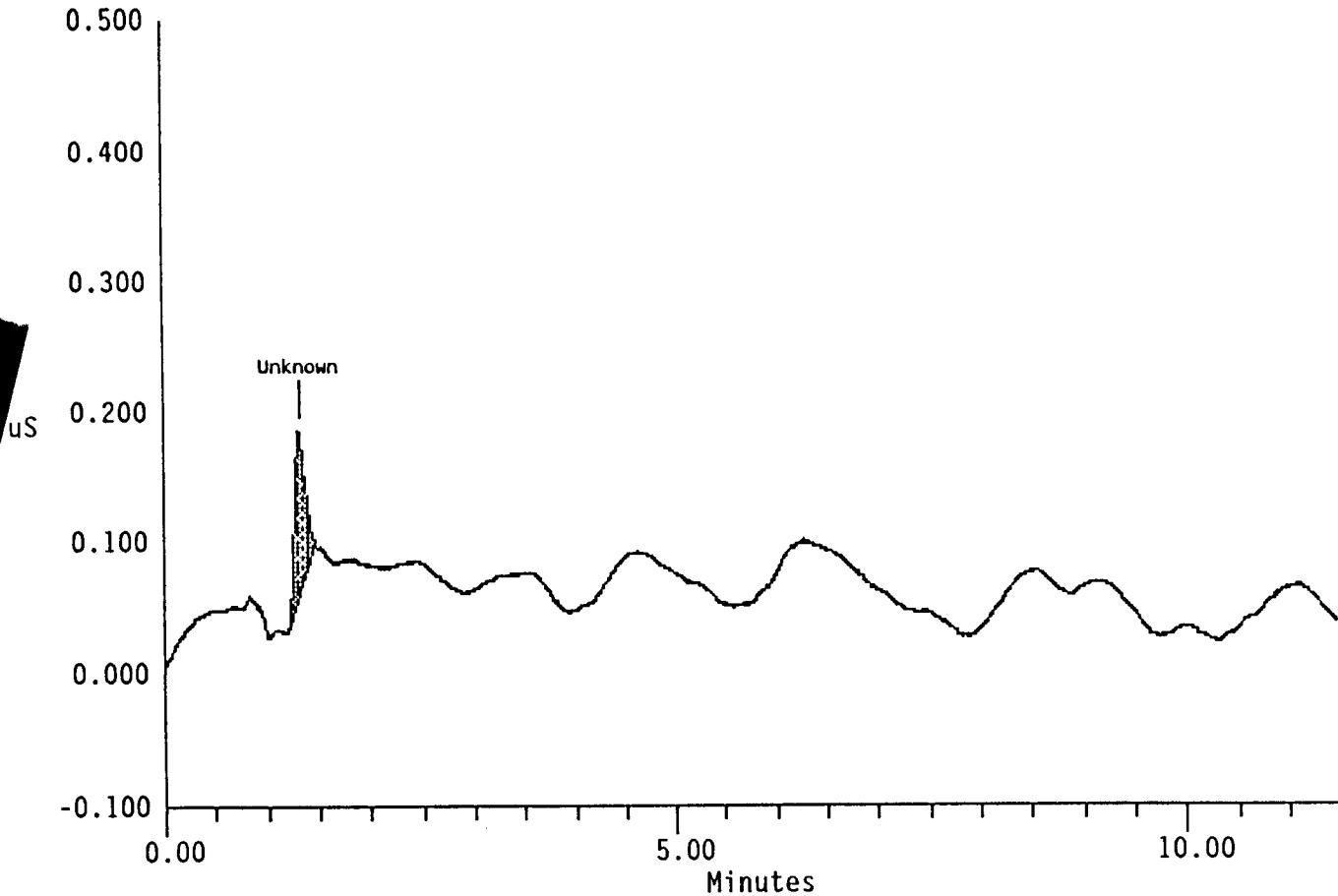


DATA REPROCESSED ON Wed Oct 10 07:48:39 1990

=====
Sample Name: BLANK Date: Thu Mar 01 11:18:08 1990
Data File : A:\90030100.D02
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject #: 2 Detector: CDM-1
=====

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	1	3451	5Hz	0.00	11.50	1000	
Pk.	Ret Component		Concentration		Height		Area	Bl. %Delta
Num	Time Name							Code

File: A:\90030100.D02 Sample: BLANK



DATA REPROCESSED ON Wed Oct 10 07:42:56 1990

Sample Name: LMCS/6C11-HK

Date: Thu Mar 01 12:31:42 1990

Data File : A:\90030100.D08

Method : c:\windows\ai400\method\sst.met

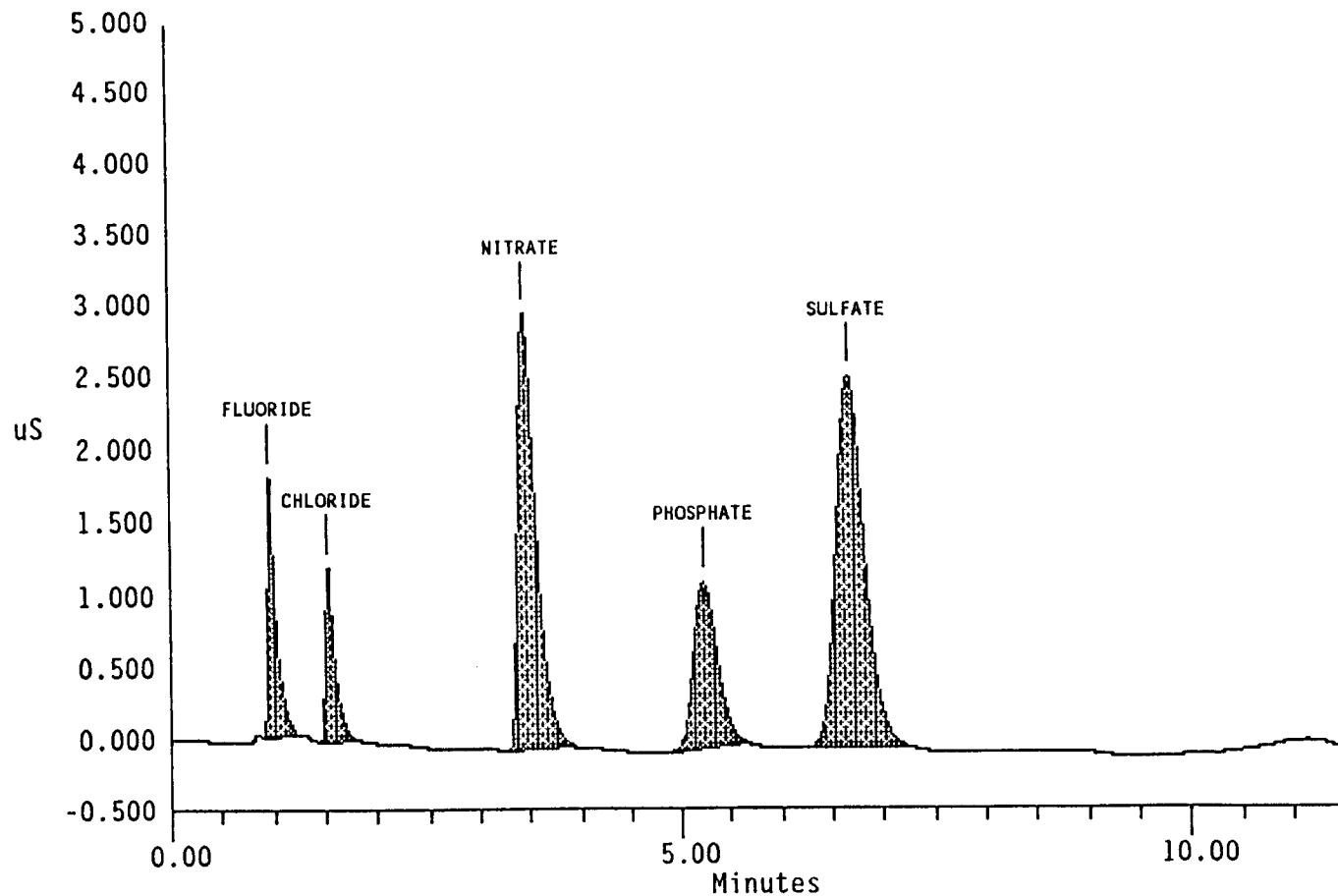
ACI Address: 1 System : 1 Inject #: 8 Detector: CDM-1

REPORT VOLUME DILUTION POINTS RATE START STOP AREA REJ

External 1 101 3450 5Hz 0.00 11.50 1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.97	FLUORIDE	64.094	1789	9734	1	0.00
2	1.53	CHLORIDE	74.063	1208	7631	1	0.00
3	3.45	NITRATE	606.879	3017	38241	1	0.00
4	5.23	PHOSPHATE	619.300	1159	19386	1	0.00
5	6.67	SULFATE	600.159	2562	49934	1	0.00

File: A:\90030100.D08 Sample: LMCS/6C11-HK



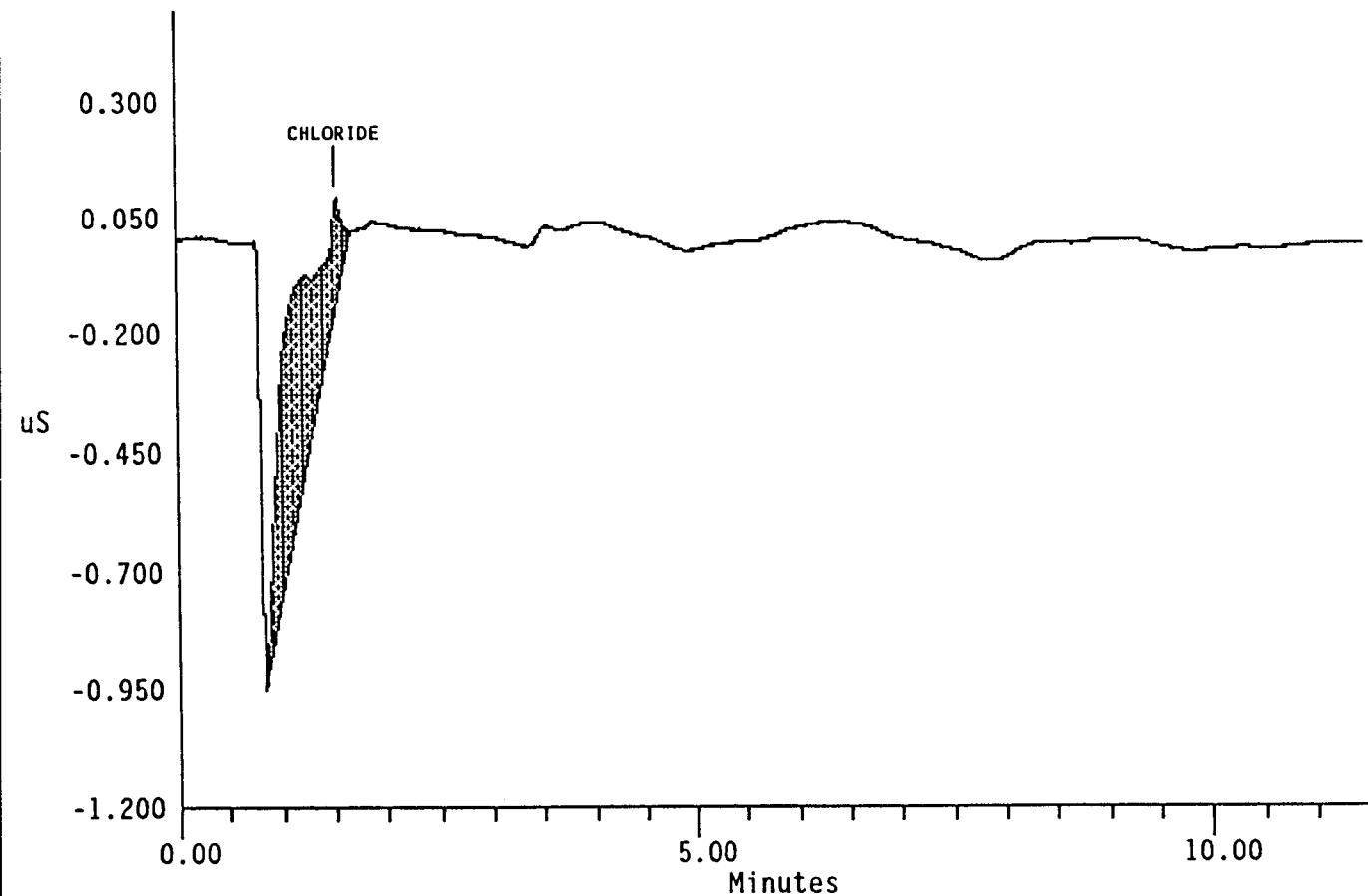
DATA REPROCESSED ON Wed Oct 10 07:54:45 1990

=====
Sample Name: 1054-B Date: Thu Mar 01 13:08:28 1990
Data File : A:\90030100.D11
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject#: 11 Detector: CDM-1
=====

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	1	3450	5Hz	0.00	11.50	1000	
Pk.	Ret Time	Component Name	Concentration			Height	Area	Bl. %Delta Code
Num								

1 1.53 CHLORIDE 0.092 224 14782 1 0.00

File: A:\90030100.D11 Sample: 1054-B

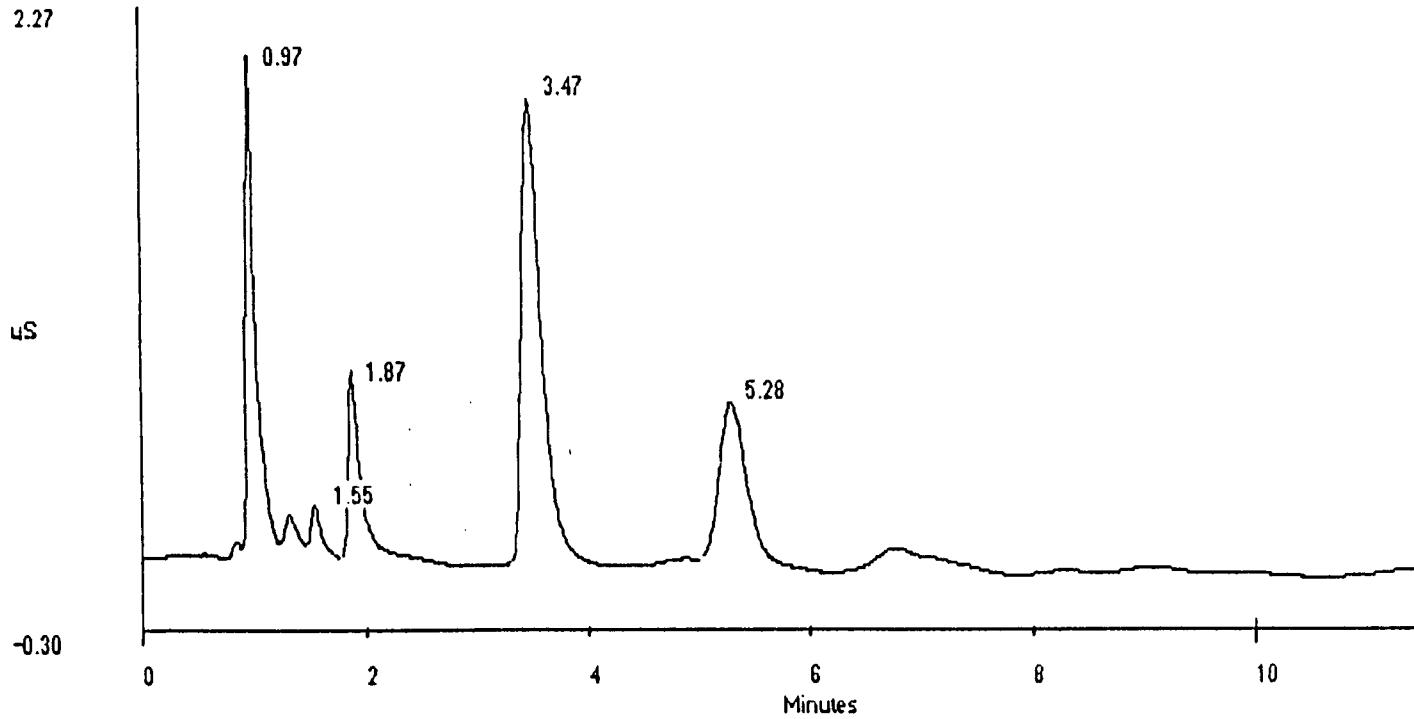


=====
| Sample Name: 1055 | Date: Thu Mar 01 13:20:48 1990 |
| Data File : c:\windows\ai400\data\90030100.d12 |
| Method : c:\windows\ai400\method\sst.met |
| CIM Address: 1 System : 1 Cycle#: 12 Detector: CDM |
=====

***** EXTERNAL STANDARD REPORT *****

Start Time = 0.00 minutes Stop time = 11.50 Minutes
Number of Data Points = 3450 One Data Point per 0.2 seconds
Areareject = 1000
Amount Injected = 1 Dilution factor = 101

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	REF BL	% DELTA PEAK RET TIME
1	0.97	FLUORIDE	6.961e+001	1.139e+004	1952	1	0 -0.34%
2	1.55	CHLORIDE	6.304e+000	1.017e+003	179	1	0 1.97%
3	1.87	NITRITE	9.613e+001	5.145e+003	694	1	0 -0.18%
4	3.47	NITRATE	3.794e+002	2.337e+004	1896	1	0 -0.95%
5	5.28	PHOSPHATE	3.434e+002	1.064e+004	638	1	0 0.63%



```

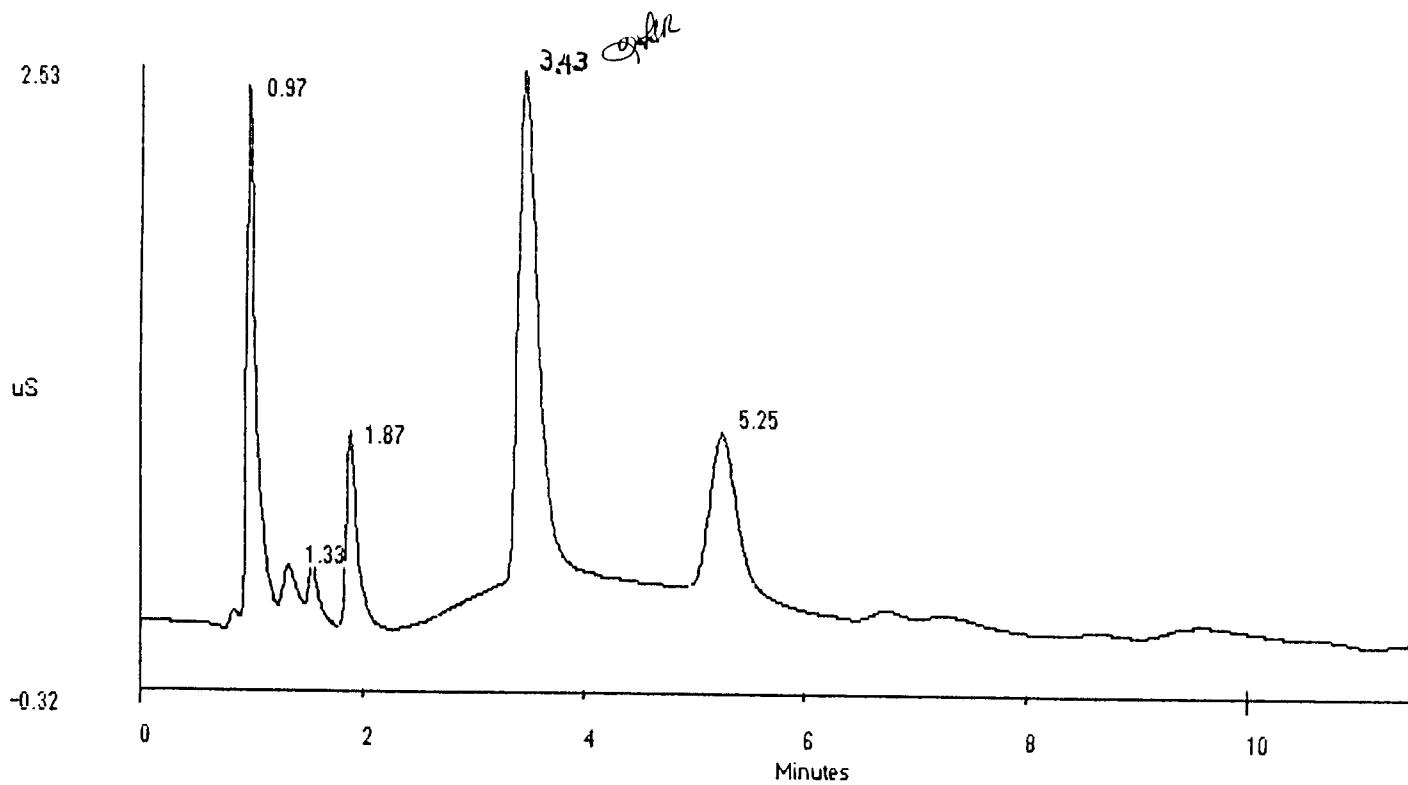
: Sample Name: 1056-D Date: Thu Mar 01 13:33:20 1990
: Data File : c:\windows\ai400\data\90030100.d13
: Method : c:\windows\ai400\method\sst.met
: CIM Address: 1 System : 1 Cycle#: 13 Detector: CDM

```

***** EXTERNAL STANDARD REPORT *****

Start Time = 0.00 minutes Stop time = 11.50 Minutes
 Number of Data Points = 3450 One Data Point per 0.2 seconds
 Areareject = 1000
 Amount Injected = 1 Dilution factor = 101

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	REF	% DELTA	
						BL	PEAK	RET TIME
1	0.97	FLUORIDE	8.249e+001	1.384e+004	2335	2	0	-0.34%
2	1.33		0.000e+000	1.326e+003	185	2		
3	1.87	NITRITE	1.087e+002	6.018e+003	828	1	0	-0.18%
4	3.43	NITRATE	4.659e+002	3.104e+004	2323	1	0	-1.90%
5	5.25	PHOSPHATE	3.866e+002	1.204e+004	719	1	0	0.00%



DATA REPROCESSED ON Wed Oct 10 07:58:06 1990

=====

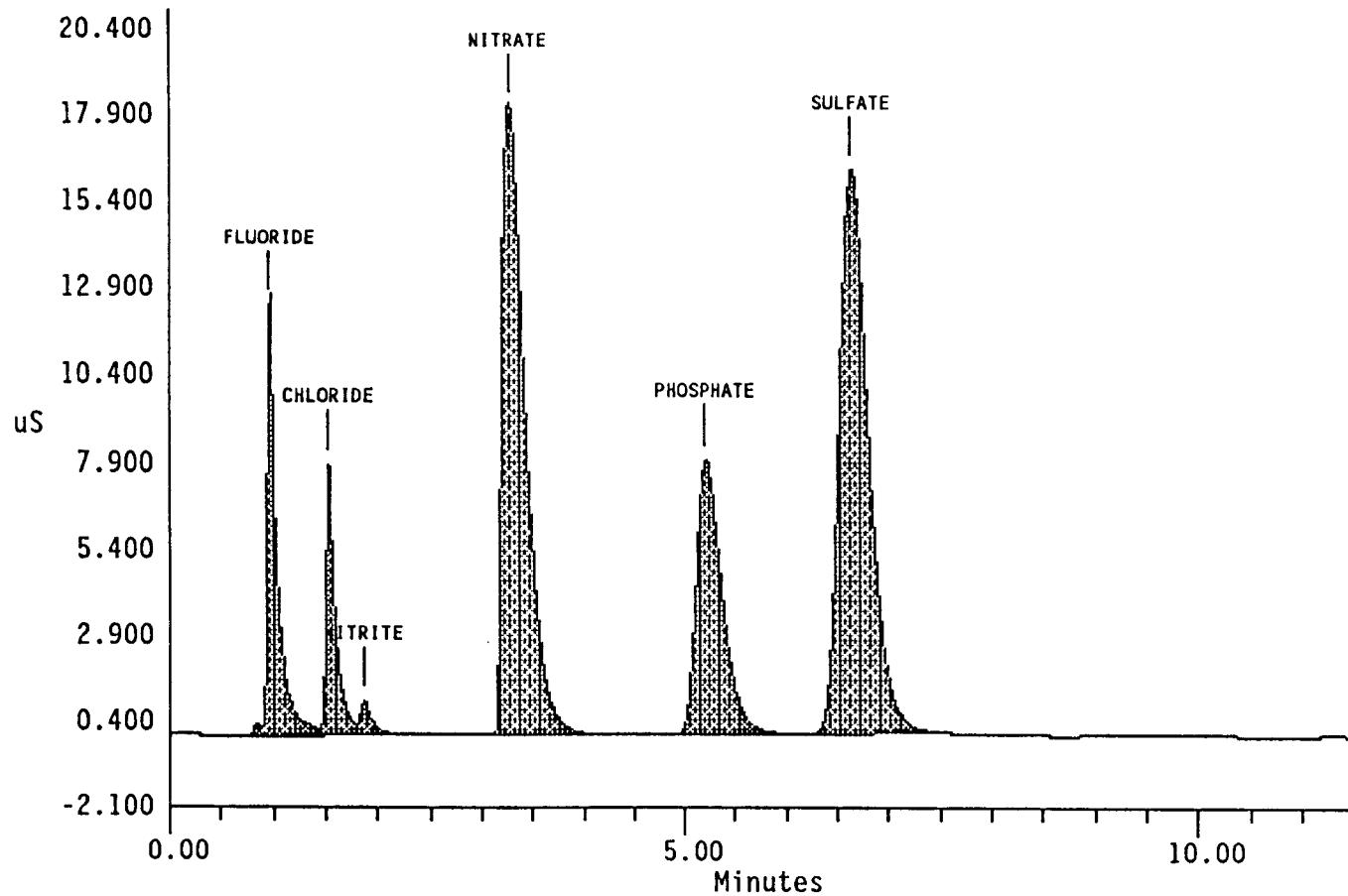
Sample Name: 1057-S	Date: Thu Mar 01 13:45:39 1990
Data File : A:\90030100.D14	
Method : c:\windows\ai400\method\sst.met	
ACI Address: 1 System : 1 Inject#: 14 Detector: CDM-1	

=====

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	101	3450	5Hz	0.00	11.50	1000	

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.97	FLUORIDE	392.421	12402	84441	2	0.00
2	1.53	CHLORIDE	438.614	7864	49052	2	0.00
3	1.87	NITRITE	127.028	1024	8049	2	0.00
4	3.27	NITRATE	3777.516	18121	291857	1	-6.67
5	5.20	PHOSPHATE	3897.200	8008	145501	1	0.00
6	6.63	SULFATE	3392.885	16264	328014	1	0.00

File: A:\90030100.D14 Sample: 1057-S



DATA REPROCESSED ON Wed Oct 10 08:03:09 1990

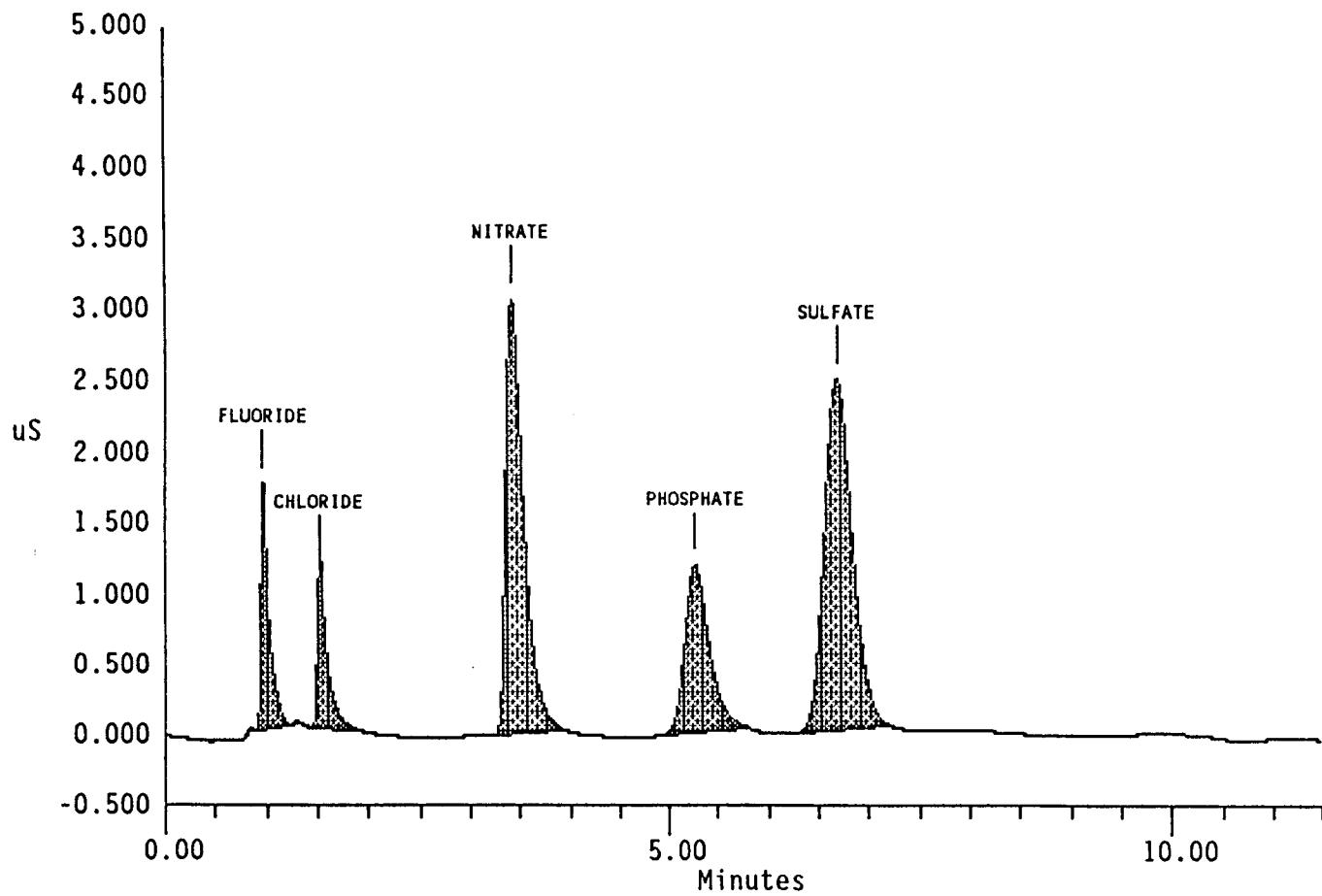
=====
Sample Name: LMCS/6C11-HK Date: Thu Mar 01 14:22:36 1990
Data File : A:\90030100.D17
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject#: 17 Detector: CDM-1
=====

REPORT VOLUME DILUTION POINTS RATE START STOP AREA REJ

External 1 101 3450 5Hz 0.00 11.50 1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.97	FLUORIDE	62.722	1748	9609	1	0.00
2	1.52	CHLORIDE	69.837	1142	7887	1	0.00
3	3.42	NITRATE	619.259	3078	39454	1	0.00
4	5.27	PHOSPHATE	639.533	1198	21203	1	0.00
5	6.68	SULFATE	583.682	2486	48498	1	0.00

File: A:\90030100.D17 Sample: LMCS/6C11-HK



Single Shell Tank Calibration Record

ANALYTE: Ion Chromatograph

PROCEDURE: LA-533-105

REVISION: A-3

INSTRUMENT: Dionex 4000

PROPERTY NUMBER: WB24721

TECHNOLOGIST: N. Wright

PAYROLL NUMBER: 6B107

DATE: February 27, 1990

CALIBRATION STANDARD ID: 35C9-69 issued February 21, 1990

ANALYTE CONCENTRATION: F 55 C1 67 NO₃ 596 SO₄ 596 in ppm

TYPE OF CALIBRATION: Quadradic least square fit

COMMENTS: See Attached Sheets

IC Control File: C:\WINDOWS\AI400\METHOD\GROUT01.TE

Step	Time	Description
Init		CDM AutoOffset Off
Init		CDM Recorder Mark OFF
Init		CDM Temp. Comp. = 1.7 / Deg C
Init		CDM Recorder Range = 1.000 uS
Init		CDM Cell ON
Init		CMA Heater = 25 Deg. C
Init		Valve A ON
Init		Valve B ON
Init		Inject Valve OFF
Init		CIM Relay 1 OFF
Init		CIM Relay 2 OFF
Init		CIM AC 1 OFF
Init		CIM AC 2 OFF
Init		GPM Start
Init		GPM Hold Gradient Clock
Init		GPM Reset ON
1	0.0	CDM AutoOffset ON
1	0.0	GPM Reset OFF
2	0.1	Inject Valve ON
2	0.1	GPM Run Gradient Clock
3	3.0	Inject Valve OFF
4	3.5	CIM Relay 1 ON
5	4.0	CIM Relay 1 OFF

GpmFile: C:\WINDOWS\AI400\METHOD\GROUT01.GPM

Lo Pressure Limit = 200

Hi Pressure Limit = 2000

Eluant 1 - DI WATER

Eluant 2 - BICARBONATE

Eluant 3 - CARBONATE

Eluant 4 -

Time	Flow	%1	%2	%3	%4	Comment
0.0	2.0	84	8	8	0	
15.8	2.0	84	8	8	0	

Component # 1 FLUORIDE Retention Time 0.97
 Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
 Least Squares Slope = 3.44350E-004
 Least Squares Intercept = 2.72767E-002
 Ka = -2.68186E-009

Level	Amount	Area	Height
1	1.09780E-001	1421	251
2	2.73600E-001	3780	712
3	5.44550E-001	8466	1502
4	1.07843E+000	21464	3149
5	2.11538E+000	39419	6374
6	4.07407E+000	88838	13086

Component # 2 CHLORIDE Retention Time 1.52
 Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
 Least Squares Slope = 6.72098E-004
 Least Squares Intercept = -5.77210E-002
 Ka = -1.43087E-008

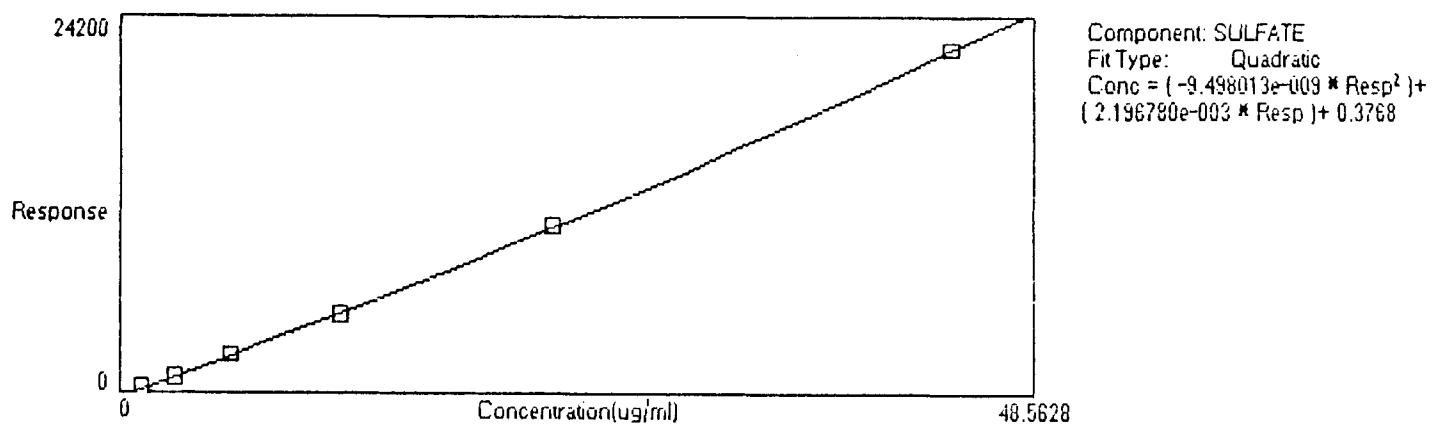
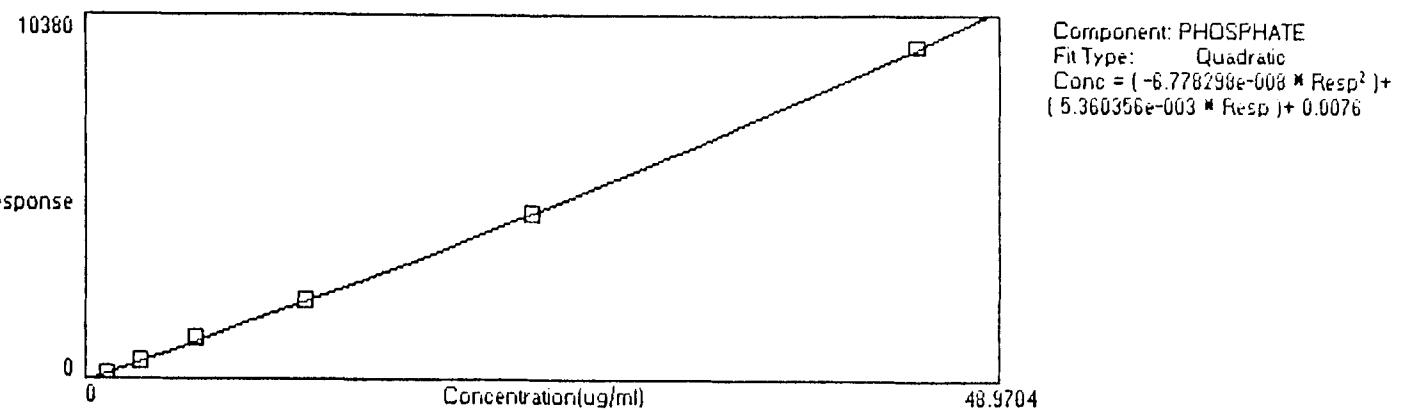
Level	Amount	Area	Height
1	1.33730E-001	1212	219
2	3.33330E-001	4283	624
3	6.63360E-001	7962	1150
4	1.31373E+000	16558	2147
5	2.57692E+000	28603	4281
6	4.96296E+000	60441	9327

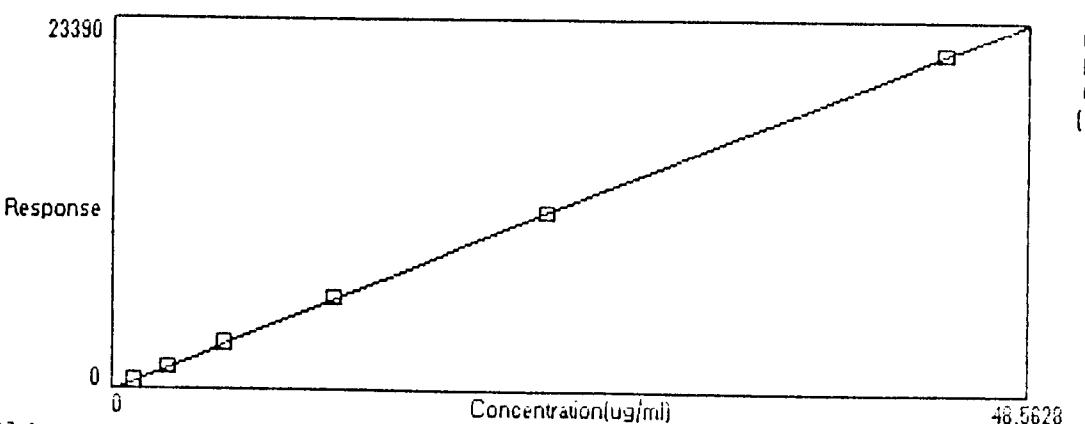
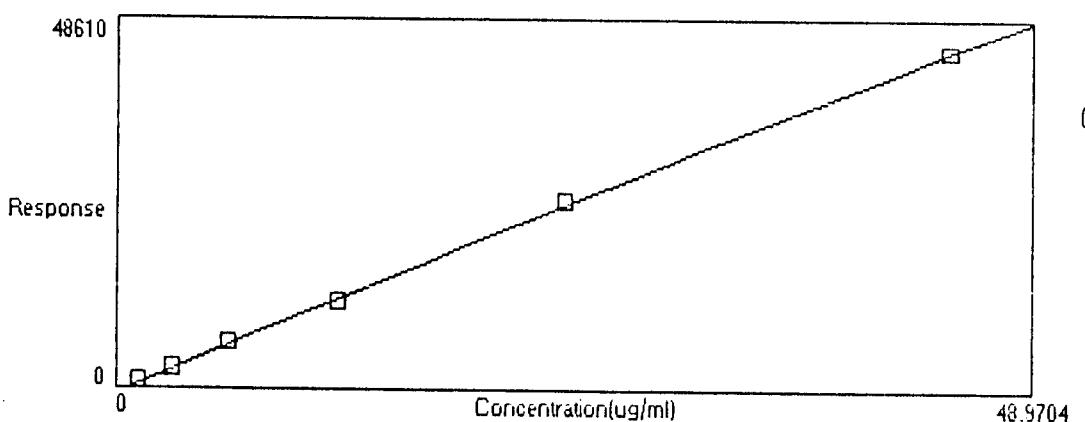
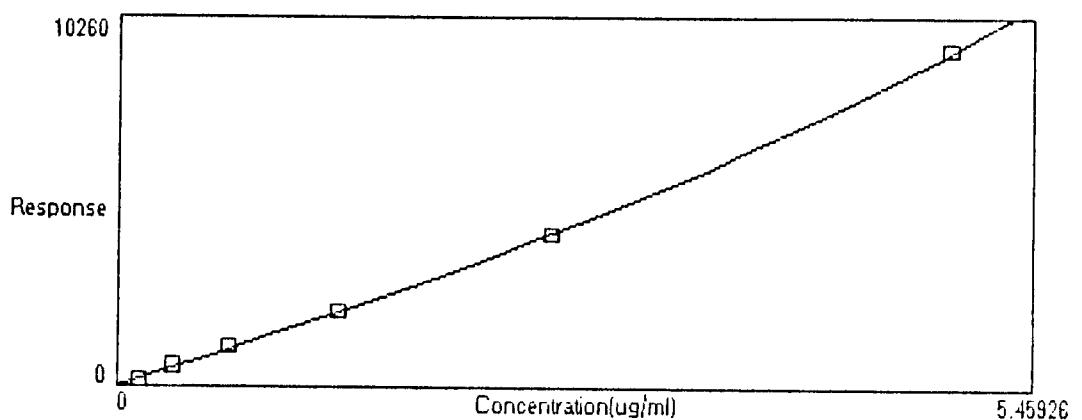
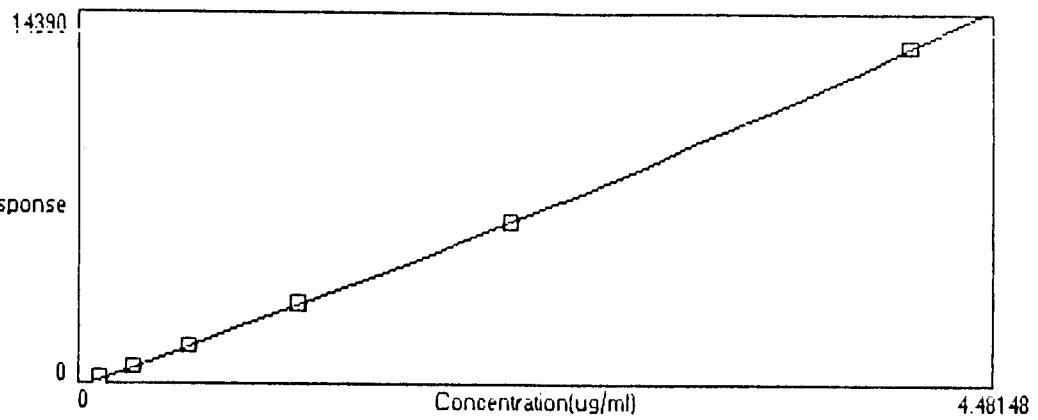
Component # 3 NITRITE Retention Time 1.87
 Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
 Least Squares Slope = 9.23046E-004
 Least Squares Intercept = 3.10460E-001
 Ka = 1.72129E-009

Level	Amount	Area	Height
1	1.19960E+000	7964	1145
2	2.99000E+000	21610	2777
3	5.95050E+000	45494	6200
4	1.17843E+001	91821	11705
5	2.39442E+001	184283	24761
6	4.45185E+001	360269	44188

Component # 4 NITRATE Retention Time 3.50
 Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
 Least Squares Slope = 1.98985E-003
 Least Squares Intercept = -3.26713E-002
 Ka = 4.19044E-009

Level	Amount	Area	Height
1	1.18960E+000	7134	590
2	2.96517E+000	17924	1477
3	5.90099E+000	38591	3012
4	1.16863E+001	78261	5849
5	2.29310E+001	168437	11234
6	4.41480E+001	344772	21259





DATA REPROCESSED ON Wed Oct 10 13:09:55 1990

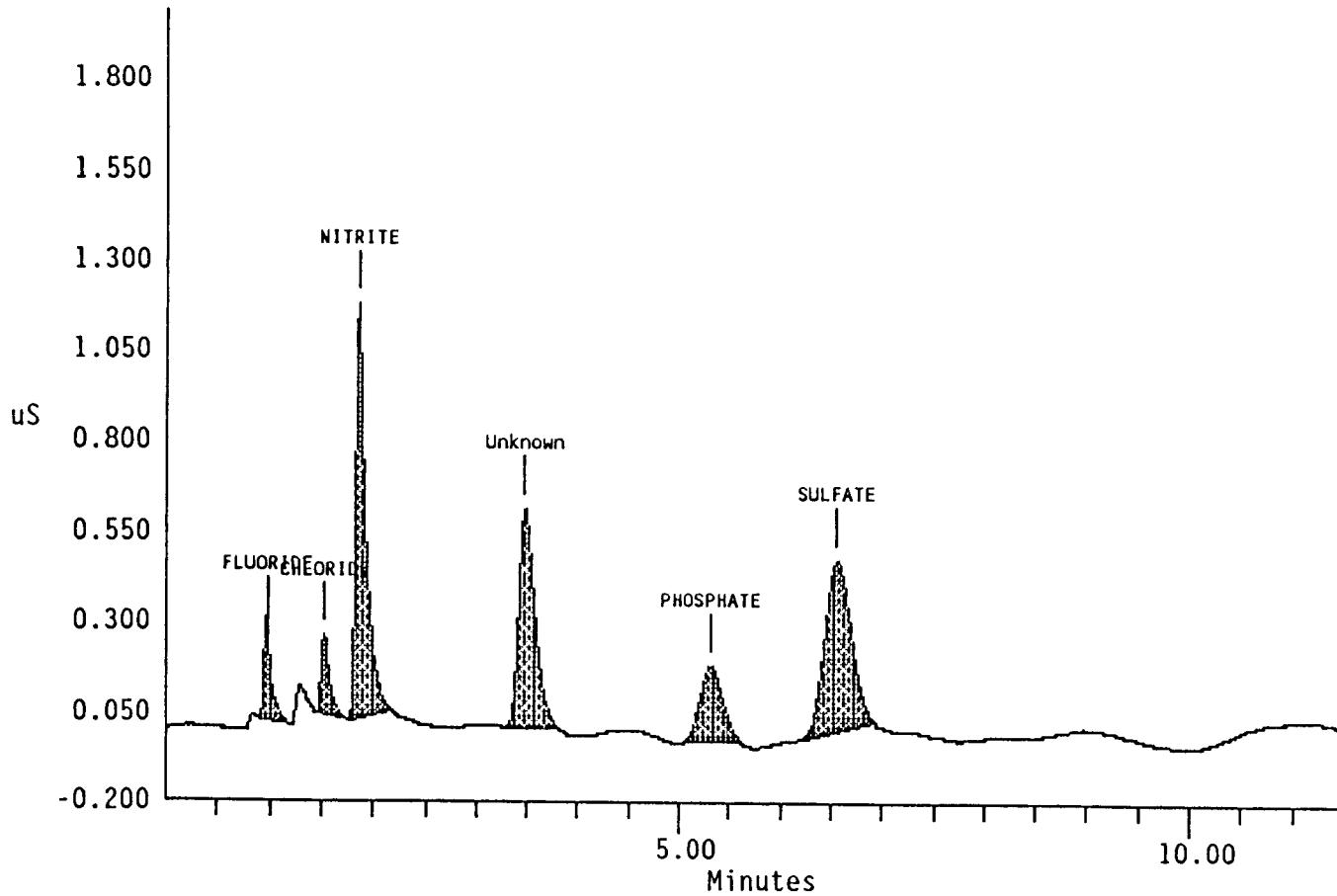
=====
Sample Name: AUTOCAL1R
Data File : A:\90022700.D03
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject#: 3 Detector: CDM-1
=====

Date: Tue Feb 27 11:40:26 1990

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	0	1	3451	5Hz	0.00	11.50		1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.98	FLUORIDE	0.110	251	1421	1	0.00
2	1.53	CHLORIDE	0.134	219	1212	1	0.00
3	1.87	NITRITE	1.200	1145	7964	1	0.00
4	3.48		0.000	607	6951	1	
5	5.32	PHOSPHATE	1.200	213	3324	1	0.00
6	6.55	SULFATE	1.190	477	8716	1	0.00

File: A:\90022700.D03 Sample: AUTOCAL1R



DATA REPROCESSED ON Wed Oct 10 13:11:30 1990

=====

Sample Name: AUTOCAL2R Date: Tue Feb 27 11:52:47 1990
Data File : A:\90022700.D04
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject #: 4 Detector: CDM-1

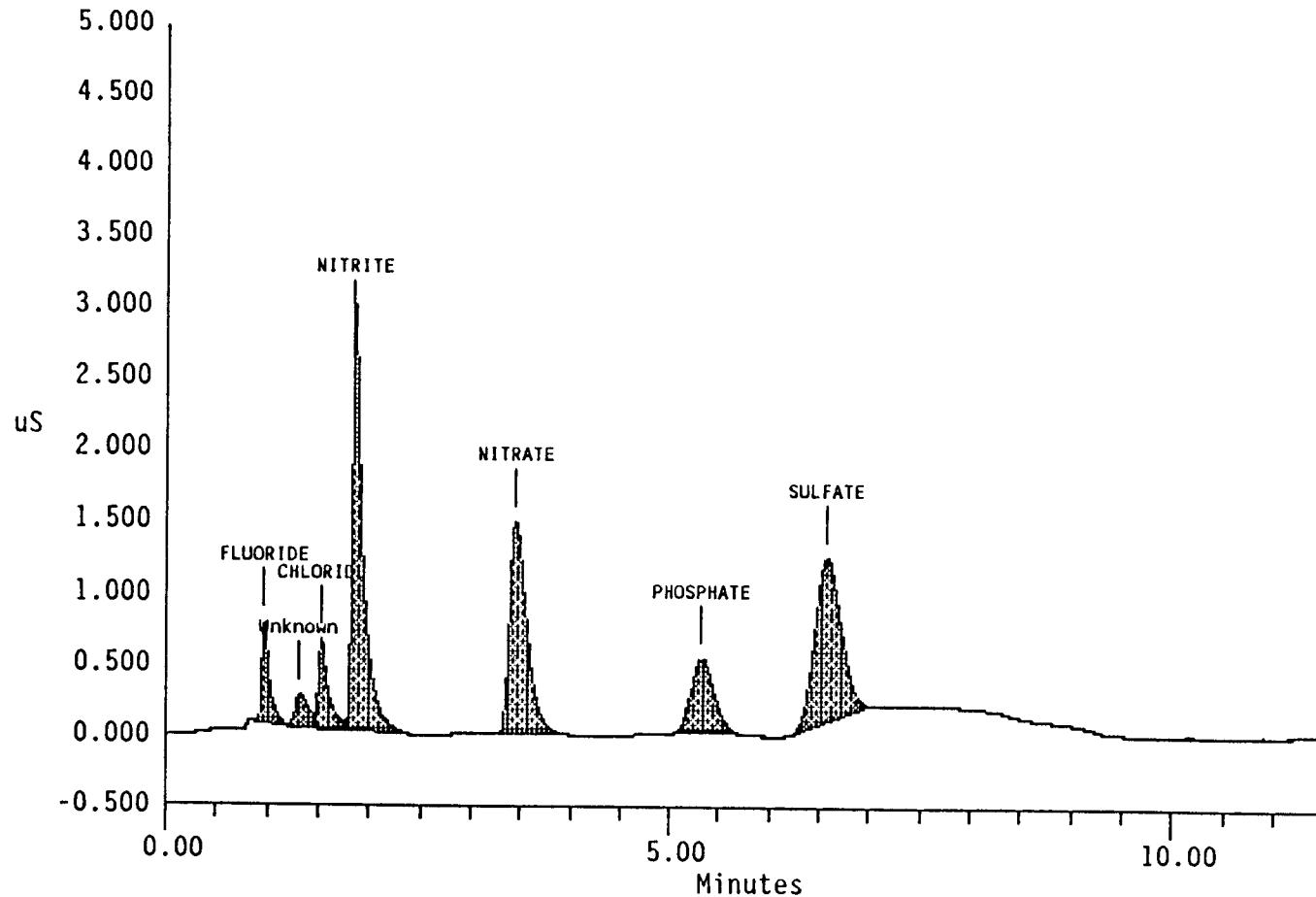
=====

REPORT VOLUME DILUTION POINTS RATE START STOP AREA REJ

External 0 1 3450 5Hz 0.00 11.50 1000

Pk.	Ret Num	Component Time	Concentration	Height	Area	Bl.	%Delta
		Name				Code	
1	0.97	FLUORIDE	0.274	712	3780	1	0.00
2	1.30		0.000	231	2059	2	
3	1.53	CHLORIDE	0.333	624	4276	2	0.00
4	1.85	NITRITE	2.990	2777	21609	2	0.00
5	3.45	NITRATE	2.965	1477	17924	1	0.00
6	5.32	PHOSPHATE	2.990	525	8508	1	0.00
7	6.57	SULFATE	2.965	1149	20979	1	0.00

File: A:\90022700.D04 Sample: AUTOCAL2R



DATA REPROCESSED ON Wed Oct 10 13:07:22 1990

=====

Sample Name: AUTOCAL3R Date: Tue Feb 27 12:05:08 1990
Data File : A:\90022700.D05
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject#: 5 Detector: CDM-1

=====

REPORT VOLUME DILUTION POINTS RATE START STOP AREA REJ

External 0 1 3450 5Hz 0.00 11.50 1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.97	FLUORIDE	0.545	1502	8466	2	0.00
2	1.32		0.000	254	2086	2	
3	1.52	CHLORIDE	0.663	1150	7962	2	0.00
4	1.87	NITRITE	5.951	6200	45490	2	0.00
5	3.42	NITRATE	5.901	3012	38591	1	0.00
6	5.35	PHOSPHATE	5.951	1176	20755	1	0.00
7	6.58	SULFATE	5.901	2507	49099	1	0.00

File: A:\90022700.D05 Sample: AUTOCAL3R

